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John Fleet M.D.

A
PRACTICAL TREATISE
ON
CONSUMPTIONS.

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A
PRACTICAL TREATISE
ON
CONSUMPTIONS.

By JOHN STEPHENS, M.D.

BOSTON ATHENÆUM.

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THE

PREFACE.

MANKIND in general, for ſome conſiderable time paſt, have regarded the medicinal art as grounded upon very uncertain, precarious, and even ſuperſtitious principles, variable at pleaſure, not ſupported with that demonſtrative evidence that attends moſt other profeſſions, and even, in a great meaſure, chimerical.

I could heartily wiſh, both for the honour of this moſt noble art, and for the good of mankind, that they had not ſome juſt reaſons for ſo doing: Indeed, I am very ſorry to ſay it, ſuperſtition, hypotheſes, and bigotry, have ſtrongly endeavoured to deſtroy the two principles upon which it is founded, and ſome of its profeſſors have aſſiſted them therein. An indifferent perſon would immediately cry out, Oh, lamentable! Nature could never have a ſtronger encounter. But why ſhall the vague and chimerical notions of fanciful and headſtrong men, have the authority to counteract the force and certainty of truth, and to perſuade the world that this art is not eſtabliſhed upon principles as certain, and capable of demonſtration, as any other art or ſcience whatever?

Had thoſe Gentlemen who introduced, in the firſt place, this crowd of phyſical lumber among mankind, but attended to the operations of nature, and obſerved carefully the natural effects of cauſes, and how theſe effects were produced, they would certainly have diſcovered their errors,

rors, and that the human body is compoſed of material particles, which are ſubject to the ſame motions and changes, and to be accounted for from the ſame laws, as any other material body of equal conſiſtance.

This is the method I have taken to account for the nature of conſumptions; and upon theſe principles it is that I have endeavoured to eſtabliſh a method of cure.

In peruſing the following treatiſe, therefore, it will evidently appear, that I have endeavoured to account for all the appearances that do attend conſumptions, together with their cauſes and effects, from the laws which are known to govern all material bodies, as attraction, repulſion, and motion, the three grand principles, or powers, to which all the diſeaſes of the human body owe their origin, and are referable.

The human body I have divided into two parts, *i.e.* ſolid parts, and fluid parts; theſe united, or, in fact, acting one on the other, are the ſyſtem of matter upon which theſe acting principles operate, in order to give riſe to all the phænomena of health and diſeaſes, to which the human body is ſo obnoxious; therefore it is abſolutely impoſſible for any diſeaſe to invade the body, or, when it is diſeaſed, for health to return, without altering in ſome meaſure, the force or operation of theſe principles.

I have, in the firſt place, pointed out the many advantages that ariſe from a juſt theory of the medicinal art, and how a perſon thus qualified may be a ſafe and unerring practitioner;

Secondly, I have conſidered mathematically the cauſes of conſumptions, and the means whereby they ariſe, and make a progreſs, in the body.

Thirdly, I have defined animal heat, the different opinions of authors thereon, and the true means whereby it is generated in the body.

Fourthly, the parts of a human body which are the ſeat of a conſumption are pointed out, and the means whereby they are affected, evidently demonſtrated.

Fifthly, the remote cauſes of a decay, or conſumption, are accounted for according to the laws of material bodies.

Sixthly, the firſt viſible effects of a conſumption are pointed out, and proved to ariſe from the fibres of the body having loſt their ſpringineſs, and from the centripetal force of the blood being increaſed: And

Seventhly, I have defined thoſe effects in the progreſs of the diſeaſe.

Chapter the Eighth, contains the immediate effects of a confirmed phthiſis, *i. e.* of ulcerated lungs, and ſets forth the efforts which nature makes to rid herſelf of her heavy burthen.

Chapter the Ninth, contains the cauſe and effects of a tabes dorſalis, and the means whereby ſuch phænomena do ariſe in the human body.

Chapter the Tenth, ſhews the immediate cauſes of conſumptions. Herein the different opinions of ſome antient and modern authors, touching thoſe cauſes, are examined, and proved by the laws of the animal oeconomy to be void of foundation.

Chapter the Eleventh, points out the nature of the non-naturals, their effects upon a human body, and the means whereby they are capable of giving riſe to a conſumption.

Chapter the Twelfth, deſcribes the prognoſtics of this ſpecies of diſeaſes, or the judgment of the events of their different ſtages, and theſe indifferent conſtitutions.

Chapter the Thirteenth, points out the general cure of this diſeaſe, which is laid down mathematically, or by propoſition.

Chapter the Fourteenth, exhibits in a clear light the wonderful effects of the non-naturals in the cure of conſumptions, and the means whereby they are capable of producing ſuch effects.

Chapter the Fifteenth, points out the general method of curing decays and conſumptions according to the parts of the body affected; and in the four following chapters I have laid down the method of curing conſumptions and decays in all their ſtages, and when attended with the moſt violent ſymptoms.

Laſtly, I have added, by way of appendix, ſome reaſons, and examples, to prove that conſumptions, like all other diſeaſes, may be effectually cured, when timely remedied.

How this method of treating conſumptions, although founded on reaſon and experience, will be reliſhed in this learned and polite age, I cannot pretend to determine, perhaps, by ſome perſons ridiculed, and laughed at, and, by a few, regarded in the ſame light that I intended it ſhould be regarded in: However, be that as it will, thus much I will venture to ſay, which has been ſeveral times hinted by many eminent phyſicians, that it is the only way we can take to arrive at any certainty in the medicinal art. All the fine-ſpun theories of anatomy, chymiſtry, botany, &c. will only inform us of the parts of the human body, the method of preparing medicines by fire, and of compounding of ſimples; and after we are well acquainted with thoſe, we may be very much at a loſs how to find out the cauſes of diſeaſes, and to adminiſter ſuch medicines as may remove that cauſe. Theſe cannot be done without a thorough knowledge of the laws of matter, and of the force or power of every motion in the animal body: Therefore he is the moſt acute phyſician and philoſopher, that can diſcover the moſt true propoſitions, that expreſs and define theſe laws and powers, and their relations and connections with each other.

To have a juſt idea of the laws of matter, and of the various motions of the animal body, and to underſtand the firſt principles on which they depend, is the moſt material ſtudy in the medicinal art.

It is very evident that the firſt principle of action in the human body is motion. Motion begins with life, and never ceaſes till death puts a period to all the ſprings of nature.

All the actions of an animal body have, certainly, their peculiar agents, on which they do depend; and every diſeaſe to which the human body is incident muſt ariſe from ſome cauſe; now it clearly appears that there can be no cauſe without increaſing or decreaſing the motions of the ſolids and fluids; which increaſe or decreaſe of theſe motions will always excite the ſame given effects, in the ſame given circumſtances, *i. e.* the ſame effects will always appear from the ſame cauſes, acting in the ſame given circumſtances, and will always require the ſame forces or powers in order to remove them.

In all diſeaſes to which the body is ſubject we may diſcover the ſymptoms heightened or depreſſed, in proportion as the cauſes increaſe or decreaſe, ſo that when we can diſcover the cauſes, we may eaſily judge of the effects, and, by both theſe, may be able to prognoſticate with certainty the future events of the diſeaſe; for it is very obvious that we can diſtinguiſh the different ſorts and properties of matter by its accidents; ſo it is equally clear that we may diſcover the different natures and cauſes of diſeaſes by their different ſymptoms, for the effects or ſymptoms are to diſeaſes and their cauſes, what accidents are to matter and its properties, *i. e.* they contain their nominal eſſence.

But to conclude, when we examine the ſyſtem of human nature upon any other principles than thoſe which are equally concerned in carrying on the harmony of the univerſe, and in directing the moſt minute particles of matter, we are continually plunging ourſelves into difficulties and uncertainties, and thereby bringing this uſeful, and, in fact, noble art, into diſrepute and diſgrace.

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A PRACTICAL TREATISE ON CONSUMPTIONS.

CHAP. I.

Of the many advantages that reſult from a juſt theory with regard to the nature of diſeaſes; and the many errors which a phyſician may fall into, who does not build the ſtructure of his practice upon this ſolid foundation.

PROPOSITION I.

To ſet forth the many erroneous principles which phyſicians have adopted, in endeavouring to eſtabliſh a theory of diſeaſes.

MANKIND in general, of all denominations, are fond of attaining to the knowledge of the art, or profeſſion, which they ſtudy, with as much eaſe and inactivity as poſſible. In the early ages of the world, when merit, and learning, were rewarded with honour and applauſe, our fore-fathers were induſtrious, and endeavoured to ſtudy nature, and her works, according to thoſe maxims which, to them, appeared to be the moſt likely for giving them a competent knowledge of theſe phœnomena; but in the preſent age, the caſe is quite altered. Thoſe perſons who are the ſtudents of the learned profeſſions, eſpecially of phyſic, are fond of ſtudying likewiſe their eaſe: they endeavour to build their ſtructure upon the wiſdom and induſtry of the antients, and to make their wiſdom and ſcience to them opinion and bigottry.

The great *Hypocrates*, a man to whom the phyſical world is much indebted, endeavoured to eſtabliſh a ſyſtem of phyſic purely upon obſervation. This was certainly a very good method conſidering the philoſophy of thoſe times, as the powers of natural bodies, the anatomy of the human body, the circulation of the blood, and the method of preparing of medicines by fire, were not diſcovered in thoſe days. The great man, of whom I have juſt now made mention, by his indefatigable induſtry in obſerving the phœnomena of diſeaſes, raiſed the reputation of medicine to a very great height, which made ſucceeding ages revere him; and I think I have read in ſome antient writers, that one of the pontifs of *Rome* gave orders for him to be cannonized as a ſaint. However, whether that was true or not, the phyſicians, from the days of this great man 'till *Galen* became famous in the world, adhered firmly to his principles, and were ſo bigotted to his opinion, that they very rarely deviated therefrom. The theory of phyſic was not much improved in this æra; and even its practice was ſo crowded with bigottry, and abſurd notions, that the valuable maxims of *Hypocrates* were almoſt defaced. *Galen*, indeed, revived the ſame, and made ſome alterations thereon; and beſides theſe, this ingenious phyſician eſtabliſhed a pharmacopœia, which, according to the powers and operations of natural bodies then known, might be regarded as an ingenious performance.

After this age, medicine received but little improvement, except what it received from the great *Sanctorius*, 'till our praiſe-worthy countryman, doctor *Harvey*, diſcovered the circulation of the blood, and other phœnomena of the human body, equally curious and inſtructive. Indeed, it muſt be confeſſed, that the chymiſts gave us ſome light into the nature of medicine, and the powers of natural bodies, although not deſignedly. The theory which they eſtabliſhed, was ſuch a confuſed jargon, and ſo crowded with whimſical and vague notions, that it required an able hand to lay open its envoloped beauties. They would endeavour to perſuade mankind, that they could, by their *aurum potabile*, and other ſecret medicines, cure all the diſeaſes incident to human bodies, and that the whole ſtudy of phyſick conſiſted in knowing how, by fire, to prepare theſe ſecrets; but the world ſoon grew tired of this nonſenſical doctrine, and, after ſome ſmall time, got it entirely exploded. The beauties of their art, *i. e.* the knowledge of the operations of natural bodies one upon another, and the uſeful obſervations which might be made thereon, they had no idea of, and conſequently we may very juſtly ſay, that they gave information to mankind of the operations of nature, although undeſignedly.

After this ſet of men had publiſhed their notions, phyſic, if I may be allowed the expreſſion, fell into a confuſion of anarchy. Phyſicians began to quarrel with each other; ſome followed the footſteps of *Hypocrates* and *Galen*; ſome adhered to the romantic doctrine which was taught by the chymiſts; and others, again, embraced the principles which were taught by the Peripatetics; nay, there were ſome who were ſo weak as to adopt the principles which were dictated by judicial aſtrology. Each of theſe ſects endeavoured to maintain the theory of medicine according to the principles which they adhered to; ſo from hence we may eaſily judge how much a theory, eſtabliſhed upon either of theſe foundations, muſt tend to improve the medicinal art.

But to come to the preſent age, an age wherein we might expect to have a great many improvements made in all branches of this art, conſidering the many uſeful helps which we have for ſo doing, *i. e.* the wiſdom of the antients, the knowledge of anatomy, the knowledge of the laws of nature, and that of the powers of the human body: but it is very evident, that medicine hath received but very few and trifling improvements in this age, notwithſtanding we have all the aforeſaid aſſiſtance. When we examine carefully into the cauſe of this ſeeming ſtrange appearance, it will very evidently appear, that it is much the ſame as it was ſome ages ſince, when the chymiſts firſt publiſhed the extraordinary virtues of their ſecret medicines. The practitioners of phyſic, in this age, are likewiſe divided into ſects, and each ſect is deſirous of improving the medicinal art according to their own way of thinking; one ſect endeavours to follow the footſteps of the antients, and to make uſe of no other means, but obſervation, to improve their art. Another ſect endeavours to improve this art by the practice of anatomy joined to obſervation. A third ſect endeavours to raiſe the credit of their art by ſpecific medicines. A fourth ſect uſes all poſſible endeavours to make the world believe that there is no other method to improve the medicinal art but chymiſtry. Some few, indeed, out of this great number, have adhered to the true means whereby this uſeful art may be improved, and laid down propoſitions for the ſame; but the clamour of the multitude, which was againſt them, hath made their uſeful aſſertions been regarded by mankind as occult and unuſeful.

PROPOSITION II.

To point out the uſes of a juſt theory for improving the medicinal art.

THE medicinal art, like any other art, is capable of being improved by a juſt reaſoning founded on any of its principles; which may, by obſervation, and experiments, be reduced into practice. The theory of the medicinal art leads us to enquire into the origin of diſeaſes, their beginning, progreſs, and difference, as alſo their ſeveral ſymptoms, or effects, with their ſeveral cauſes both immediate and procatarctic. A phyſician who is unacquainted with this phœnomena, to which I might likewiſe have added the nature of the air, the method of ordering diet, and the influence of the reſt of the non-naturals, and how thoſe are capable of influencing our bodies to receive the impreſſions of diſeaſes, will be for ever groveling in a ſtate of obſcurity, and may very juſtly be compared to the fooliſh man who built his houſe upon the ſand. He can never diſcover the cauſe of any difdiſeaſe, the effects which that cauſe will produce, the nature and quality of the medicines which may be proper for its cure, nor the manner in which theſe medicines ſhall operate: his whole art conſiſts in ordering a medicine for the relief of any diſeaſe, which he has been informed has relieved a diſeaſe of the ſame kind before. He has no regard to the ſtrength of the conſtitution, the cauſe of the diſeaſe, or the ſymptoms which are preſent. But, notwithſtanding the abſurdity of this method of practicing the medicinal art, we have frequently been informed by gentlemen of the profeſſion, which, in the opinion of the unthinking part of mankind, are very eminent therein, and notorious for their writings, that any kind of theory is of very little conſequence in the practice of medicine: but I hope all thoſe perſons, who can form any juſt idea of the true nature of things, will regard theſe notions as abſurd and ridiculous, and plainly perceive the great neceſſity of a juſt theory, grounded upon principles of art, in order to aſcertain a ſucceſsful practice. Thoſe perſons who are ſkilled in arts and ſciences, of what kind ſoever, muſt certainly know, that there are peculiar propoſitions and laws, to which, as an eſtabliſhed baſis, they reduce all the methods of practice which they can diſcover in any art. Theſe propoſitions and laws, while they can only be regarded as the cauſe of action, are ſtiled the theory of any art, being only a ſyſtem of propoſitions by which we ſolve the phœnomena of natural bodies, according to their appearances. But when theſe laws and propoſitions are immediately applied to the actions themſelves, we muſt then give them the denomination of practical laws or propoſitions. The methods which we purſue to form a right judgment of the cauſes and various effects of diſeaſes, I call principles of ſpeculation, and on which I ground the theory of medicine: but thoſe methods we take to alter, in any degree, the motions of the ſolids and fluids, while the body is oppreſſed with the violence of a diſeaſe, ſo that they may return to their priſtine elaſticity and degree of motion, I call principles of practice, which, ſtrictly ſpeaking, are the reſult of the former, and which, in my opinion, are the foundation of the practice of phyſic. Again, if we examine carefully the nature of the diſeaſe, it will evidently appear, that it can never attack ſuccefsfully a body, under the circumſtances of health, without certain pre-diſpoſing cauſes do aſſiſt its operation; and theſe cauſes will for ever have the ſame effects in producing appearances, *i. e.* the ſame cauſes will always produce the ſame diſeaſes, if the ſtrength of the conſtitution, the nature of the atmoſphere, and other circumſtances be alike; and, conſequently, whenever the cauſe of any particular diſeaſe is once plainly diſcovered, and the nature and violence of its effects truly aſſigned, it will be very eaſy for us to comprehend what intentions are moſt proper to be anſwered to remove the cauſes, and then the effects muſt ceaſe of courſe; and therefore, by purſuing of juſt and right principles, we ſhall either be able to remove all the ailments of the human body, or at leaſt be able to inform mankind of thoſe difficulties that indicate their being incurable.

PROPOSITION III.

To diſcover the means of attaining to a right and juſt theory of phyſic and diſeaſes.

IN my treatiſe on fevers, I have endeavoured to point out the general laws of material bodies, when in motion and when at reſt. I have, in the ſame treatiſe, applied theſe laws to the human body, and by them have endeavoured to account for the various operations of nature, to point out the true cauſes of the diſeaſes I there treated of, to point out the method of relieving theſe diſeaſes, and to account for the operations of the medicines by which they are relieved. This is the chief means which appears to me to be calculated for the diſcovery of a juſt and right theory of phyſic and diſeaſes; and if we add to it a competent knowledge of anatomy, chymiſtry, and pharmacy, we cannot fail of practicing the medicinal art ſucceſsfully. By material bodies, as there applied to animal bodies, I would be underſtood to mean that ſyſtem of ſolids and fluids which compoſe the human body. By the laws of theſe bodies, I mean theſe qualities which preſerve the proper textures of different bodies; the chief of which are, *firſt*, attraction; *ſecondly*, repulſion; and, *thirdly*, motion. Attraction is that centripetal force, and inherent quality, in all bodies, by which their particles of matter adhere together, and which gives them a proper conſiſtency: this quality is more or leſs in all bodies, in proportion to the nature of their conſtituent parts, *i. e.* in proportion to the largeneſs of their points of contact. The particles of fluids have a much leſs attractive force than the particles of ſolids, and *vice verſâ*. Repulſion is that centrifugal force, or expanſive quality, in all bodies, by which their particles of matter are kept in a proper degree of fluidity: this force counteracts the force of attraction, which otherwiſe would reduce all bodies to impenetrable maſſes of matter. The particles of matter which compoſe ſolid bodies, have a much leſs repulſive force, than thoſe which compoſe fluid ones, and *vice verſâ*. Motion is that great law which ſupports the action of all ſpringy and fluid bodies. In the human body it ſupports the actions of the whole fabric, and ſets all its ſeveral ſprings a-going; ſo that the body will be in health, or diſeaſed, according as the quantity and power of this principle is intended or remitted. Theſe are the chief laws which are obſerved to ſubſiſt in material bodies. There are other laws, or effects, which reſult from the different modifications of matter; which are chiefly affected by thoſe three great laws. Theſe exhibit to our view thoſe diſtinct ideas that repreſent a body, either in health, or labouring under a diſeaſe. A perſon who is acquainted with the laws and powers of matter and motion, ſhould next proceed to examine thereby the conſtituent parts of the human body, their ſtructure and different modifications, their qualities and conſtitutions, and then he will eaſily perceive how health, in its ſeveral degrees, does reſult from certain agreeable modifications, and regular motions, in that ſyſtem of ſolids and fluids which compoſe the human machine. A body wherein this harmony of motion and modification ſubſiſts, may be ſaid to enjoy a perfect ſtate of health; the fibres thereby have a proper degree of ſpringyneſs, ſo as to be able to give the blood ſuch a degree of motion as will render it capable of paſſing and repaſſing the minuteſt artery; and conſequently the ſeveral ſecretions will be made in the moſt exact proportion, and the ſeveral excrements excerned without any degree of obſtruction: therefore, when we examine carefully this matter, it will evidently appear, that the beſt means of attaining a juſt theory, and the cleareſt way of reaſoning cloſely, ſo that we may be capable of purſuing our diſcoveries in medicinal ſearches through the moſt intricate mazes of nature, is to lay down ſome general propoſitions, which are obvious to our ſight, and from thence we ſhall be able to infer a chain of concluſions, equally obvious and certain.

CHAP. II.

Of the nature and cauſe of waſtes, decays, and conſumptions.

PROPOSITION I.

The moſt direct and genuine way to demonſtrate the nature of decays, the manner how bodies begin to decay, and the effects of the ſame, is, in the firſt place, to make ourſelves acquainted with the means by which they receive their nouriſhment, and on what laws the phænomenon depends.

BODIES which do not receive ſuch a quantity of nouriſhment as is adequate to the quantity excerned, and diſſipated, by the continual agitation and friction of the ſolid parts, muſt fall into decays and conſumptions. Nouriſhment is the means which preſerves the elaſticity of the fibres, and the texture and balmineſs of the fluids; without nouriſhment, the former would ſoon loſe their elaſtic ſpring, and by their friction againſt each other, would deſtroy even their conſtituent parts; and the latter would not only loſs their fluidity and balſamic quality, but become acrid, and deſtroy their containing veſſels. Therefore, as nouriſhment is the chief means by which a human body ſubſiſts, it behoves us to be well acquainted with the general laws of nutrition, or the manner by which bodies are ſubſiſted.

PROPOSITION II.

That it is impoſſible for us to diſcover the laws of nutrition, or the means whereby bodies receive their nouriſhment, except we, in the firſt place, get a right knowledge of the inſtruments upon whoſe conſtant action this great principle depends.

IF we cannot be fully acquainted with the ſprings and wheels by which a machine is ſet in motion, we can never be acquainted with the nature of its motion, nor what powers are capable of raiſing or depreſſing the ſame. Nouriſhment is to the human body, what oil is to the minute ſprings of a fine machine. Without oil, the machine would ſoon wear out, by the continual friction of its minute parts; and, on the other hand, too much oil would, in the firſt place, retard the motion of the machine, and afterwards, by gathering of filth, would entirely deſtroy the ſame. Without nouriſhment the human body would fall into decay, as I have already obſerved; and, on the other hand, by too much nouriſhment, its fibres are clogged, its motions thereby retarded, and afterwards, by an accumulation and inteſtine motion of the ſame, the body is entirely deſtroyed.

PROPOSITION III.

The inſtruments, upon whoſe action this great principle of nutrition depends, are the ſolid parts; and the nutritive influence which they impreſs upon the fluids contained in their tubes, is purely by the power of their vibrating and elaſtic ſpring.

THE aliments which are received into the human body, would ſerve only to clog and deſtroy the actions of the ſame, were they not divided, ſub-divided, kept in continual agitation, and preſſed forward by the ſpringineſs and elaſticity of the ſolids, for the nouriſhment of thoſe minute parts whoſe conſtituent particles are continually diſſipating. The whole theory of digeſtion, and the immediate inſtruments by which it is performed, may be ſeen fully exemplified by my treatiſe on fevers, to which the reader is referred.

PROPOSITION IV.

The ſpringineſs of the ſolids is entirely owing to thoſe fine threads, or fibres, of different makes and arrangements, which ſerve to compoſe any part or organ, and which are endued with certain contractile and diſtractile powers, in which conſiſts their elaſtic ſpring.

THE the ſolid parts of the human body are compoſed of fine threads or fibres, and that thoſe fibres are endued with a ſpringineſs, contractile, and diſtractile powers, is very obvious; but, except thoſe are conſtantly nouriſhed, and their waſtes properly ſupplied, they will ſoon loſe all thoſe powers, and fall into a ſtate of immovability.

PROPOSITION V.

To this ſpringineſs, and equal impulſe of the fibres, is owing, that equal circulation of the blood and juices in every minute veſſel and fibre of the body.

THE heart, that fountain of life, by its contractile and diſtractile powers, protrudes the vital ſtream through the arteries, and ſends it to the moſt remote parts of the body; but had it not been for the contractile force of the fibres which compoſe the arteries, and of thoſe of the veins, which, in my opinion, we may juſtly call their ciſterns, the circulation would not be carried on ſo equally through the body, nor be thus active in the minuteſt fibre thereof.

PROPOSITION VI.

When the circulation of the blood is equally maintained in every minute part of the body, health is enjoyed in its higheſt perfection; but as ſoon as the vital ſtream begins to be unequally diſtributed, the body immediately begins to be diſeaſed.

THE circulation thus equally maintained in every fibre of the body, gives us the idea of that ballance of nature in which conſiſts the medium of health; *i. e.* every fibre receives ſuch a quantity of juices as is requiſite to preſerve its elaſticity, contractile, and diſtractile force; but when the circulation is unequally diſtributed, ſome fibres are deprived of this ſupply of juices, and conſequently wear out, whereas other fibres have a redundant quantity of juices forced upon them, and thereby loſe their elaſtic ſpring, fall into a ſtate of relaxation, and give riſe to a diſeaſe.

PROPOSITION VII.

This ſpringineſs or elaſticity of the fibres is capable of being raiſed or depreſſed above or below the ſtandard of nature.

IF there is any aliment received into the body which is warm and ſtimulating, or if there is any compoſition, of the ſame nature, externally applied to any part, theſe will be found, by their ſtimulus, to increaſe the contractions and elaſticity of the fibres: but if the aliment received into the body be cooling and viſcid, or a compoſition of the ſame nature be applied externally to any part, they will be found to depreſs the ſpringineſs of the fibres, and, if long continued, to entirely deſtroy the ſame.

PROPOSITION VIII.

As this ſpringineſs and elaſticity of the fibres are capable of being raiſed or depreſſed, above or beneath the ſtandard of nature, ſo are their impreſſions upon their contained fluids, greater or leſſer; ſo is the velocity of the circulation, ſwifter or ſlower; and ſo is the texture of the juices ſtronger or weaker; which, conſequently, will excite diſeaſes of different natures in the body.

IT is very evident that the ſpringineſs of the fibres is the firſt ſpring of motion in the human body, and according to the ſtrength and power of this firſt mover, will the ſubſequent motions of the body be ſtronger or weaker, ſwifter or ſlower.

PROPOSITION IX.

When this ſpringineſs and elaſticity of the fibres are increaſed, they increaſe the velocity and heat of the juices, and, conſequently, will immediately ſubject the body to diſeaſes of an acute nature: but when, on the other hand, this ſpringineſs and elaſticity of the fibres are decreaſed, the motion and heat of the fluids will likewiſe be decreaſed, and the body be diſpoſed to the cold and leucophlegmatic diſeaſes.

WHenever the velocity and heat of the blood and juices are increaſed, their globulous particles will be expanded by the rarefaction of their contained air, and conſequently the bulk and preſſure of the whole maſs will be increaſed, which, with its increaſed heat, diſtends and irritates the fibres, and diſpoſes the body to an inflammatory ſtate, and thereby to diſeaſes of the moſt acute nature. But, on the contrary, when the velocity and heat of the blood and juices are decreaſed, the bulk of their globulous parts will be diminiſhed, their contained air, or centrifugal quality, will be condenſed and rendered almoſt inactive, and their centripetal, or attractive quality, will be increaſed, and conſequently the whole maſs will become more tenaceous, and diſpoſe the body to chronical diſeaſes.

PROPOSITION X.

When the ſolid parts of the body begin to loſe their elaſtic ſpring, and the digeſtions their attenuating quality, whereby they are not able to divide, and properly aſſimulate, the nutritive juices, the firſt effects which diſcover themſelves to our view, are the ſymptoms of decays and conſumptions.

WHEN any part of the body is deprived of ſuch a quantity of juices as is requiſite to preſerve the ſpringineſs and elaſticity of its fibres, that part will immediately begin to diminiſh in ſubſtance and decay; and the reaſon thereof is obvious; for the fibres, by their continual friction againſt each other, will be continually loſing ſome of their ſubſtance, which will be forced off by perſpiration, or ſome other evacuation, and if theſe fibres are not properly nouriſhed with well digeſted juices, the part muſt immediately fall into a decay, which will be more or leſs violent, according as its nutritive juices are more or leſs retarded.

PROPOSITION XI.

The waſtes and decays of the human body, or of any part thereof, are therefore nothing more than a recedance of nature from her juſt ballance; which ariſes, in the firſt place, from a decreaſe of the ſpringineſs and elaſticity of the fibres which compoſe the ſolid parts thereof, and from the increaſe of the centripetal or attractive force of the fluids, which is the conſequence of that decreaſe, and whoſe immediate effects are ſchirrous ſwellings, obſtructions, and ſcrophulous tumours.

I Have already obſerved how a decreaſe of the ſpringineſs of the fibres gives riſe to a viſcidity of the juices; which, when grown viſcid, will be incapable of circulating thro' the minute paſſages of the body, and, conſequently, obſtructions will be formed; which, by an accumulation of juices that will be forced thereon, by the protruding force of the heart, will ſoon form themſelves into a tumour, or ſchirrous ſwelling, that will be more or leſs violent, according to the magnitude of the veſſels obſtructed.

PROPOSITION XII.

That part of the body will be firſt affected with ſcrophulous tumours and diſeaſes, where the elaſticity and contractile powers of the fibres are the moſt decreaſed, as that part, according to the laws of nature, will be the leaſt able to make reſiſtance to the force of the juices coming upon it, from the impulſe of the heart, and will evidently point out to us the ſeat of the diſeaſe, and the immediate cauſe of the ſymptoms.

THEM great ſprings of motion, the heart, and the contractions of the fibres, which compoſe the veſſels of circulation, protrude the circulating juices into the moſt minute parts of the body; and nature has contrived a means to return again to the heart, by the veins, ſuch a portion thereof, as is not requiſite for nouriſhing and giving moiſture to thoſe parts. If therefore the fibres of any part of the body are relaxed, and their contractile powers decreaſed, them fibres will not be capable of returning again to the heart the ſuperfluous juices which are forced upon them by the aforeſaid powers, and ſprings of motion; and, conſequently, that part will be firſt obſtructed; ſecondly, tumefied; and thirdly, by the preſſure of thoſe juices, it will retard the juices which are appropriated to other parts; and, conſequently, ſubject them likewiſe to decays and waſtes.

COROLARY I.

THE ſeat of the diſeaſe, and the nature of its effects, being evidently diſcovered, from the appearance of the parts affected, or from the weakneſs and relaxation of other parts which are dependant thereon, it is very obvious, that the cauſe of the diſeaſe muſt ariſe from the depreſſion or relaxation of the fibres beneath the ſtandard of nature, and from an accumulation of juices upon the parts affected, the conſequence of that depreſſion or relaxation. This muſt likewiſe be the remote cauſe of the hectic fever that attends conſumptions, through almoſt all their ſeveral ſtadiums. Its immediate cauſe is a plethora, generated in the body from obſtructions and tumours, which are the effects of the aforeſaid collection of juices, lodging upon the affected parts, which ſtop the courſe of the circulation thereon, and conſequently increaſes it in the other parts; hence a plethora, and a fever its immediate conſequence.

COROLARY II.

FROM theſe remote cauſes, and a plethora the immediate cauſe, will ariſe the ſeveral diſcharges of urine, looſeneſs, night-ſweats, and other evacuations, which haſten on the conſumption, and which muſt always be the effects of thoſe cauſes; as the relaxed fibres cannot give a proper reſiſtance to the increaſed heat and preſſure of the fluids.

CHAP. III.

Of animal heat, how generated, and how far nutrition is capable of its production.

PROPOSITION I.

To point out the opinions of the antients, and ſome of the moderns, of the cauſe of animal heat, or the means whereby life and vigour are diffuſed into the ſeveral parts of the body.

IT will not be very material whether I make mention of the opinions of the antients on this head, ſeeing that they have been long ſince exploded, and proved to be groundleſs: however, to make a proper diſtinction between their opinions, and the opinions of the moderns, I ſhall briefly treat of the chief of their ideas on this ſubject.

The primitive profeſſors of medicine, ſuppoſed a *calidum innatum*, inherent in the conſtitution, that diffuſed life and vigour into all its parts. Thoſe who were, in after ages, their ſucceſſors, made ſome diſtinction between innate heat, and a kind of influent heat, which, in their opinion, ſubſiſted in the body; but as neither of thoſe opinions had any foundation, and, in fact, were nothing more than mere chimeras, they have long ſince been exploded. *Galen*, and all his followers, held ſacredly an opinion, that the *humidum radicale, vel promogenium*, or radical moiſture, was an innate principle likewiſe, and depending upon the former; from which principles they drew this natural concluſion, that our bodies would eternally perſiſt in the ſame exiſtence, and under the ſame duration and form, if thoſe principles could but be maintained evenly the ſame, without any variation: But ſince the moderns have diſcovered the method of conducting the body by mechanical laws, and the juſt improvements in natural philoſophy, it does evidently appear, that this *calidum innatum*, and this *humidum* *radicale*, are nothing more than the mechanical affections of matter and motion, liable to alterations and changes, according as the ſolid and fluid parts of the body are differently intended or remitted.

Having briefly conſidered the opinion of the antients on this head, I ſhall go on directly to conſider ſome of the opinions of the moderns. The firſt is, that animal heat is owing to the attrition of the ſolid parts on one another; the ſecond, that the lungs are the parts from whence this heat is derived; the third, that it is owing to the mutual attrition of the arteries and blood; the fourth, that it certainly muſt be produced by the mechanical attrition of the particles of our fluids. I ſhall proceed to enquire which of thoſe opinions bears the neareſt reſemblance to truth, or whether, in fact, either of them has any foundation, according to the nature of material bodies.

Firſt, then, it is frequently taught, that animal heat is owing to the attrition of the ſolid parts on one another. To prove tha this opinion is equally baſeleſs with the opinion of the antients, and bears not the leaſt reſemblance to truth, will not require a long chain of reaſoning. The heart and arteries, of all parts of the body, move moſt; and, conſequently, it ſeems moſt natural to expect that the heat ſhould be owing to this motion. But if we examine this matter carefully, it will evidently appear, that this is not at all probable; for, in the firſt place, if we conſider, that the moving parts, notwithſtanding we may term them to be ſolids, are pliable, and continually moiſtened; therefore they are not capable of generating heat; which, in the coarſe mechanic way of attrition, requires dryneſs, and rigidity of the parts. Secondly, their motions are very ſlow and ſmall, and have no change of ſurface in their attritions; and, conſequently, no heat can be raiſed by this means. Thirdly, the fibres of the human body, which we term the moveable ones, are, when examined by the beſt glaſſes, adjoined to fat, and every where ſurrounded with mucilaginous liquors, which nature has provided to keep them pliable, and to prevent their being heated by attrition.

I ſhall proceed to conſider the ſecond opinion; which is, that the lungs are the parts from whence this heat is derived. In my treatiſe on fevers, I have obſerved how that the blood veſſels of this organ do every where attend, divide, and ſubdivide, along with the minute branches of the windpipe; and as theſe are perpetually changing their ſituation and form, becoming larger, or ſhorter, making more acute, or more obtuſe angles, ſo muſt the adjoyning blood veſſels every moment make new angles, and give the vital ſtream new directions, that at laſt the blood enters into a minute ſeries of veſſels, ſpread every where on the thin air veſſels, and is here undergoing continual changes. From theſe, the elaſticity of the air, and the preſſure of the ſame, the blood is ſaid to be preſſed forward and backward, divided, ſub-divided, and again condenſed, and ſaid to receive its heat and florid colour.

This theory appears to me to be void of any foundation, for the following reaſons: *Firſt*, Becauſe the lungs, if they are not regularly ſupplied with a plenty of ſuch air as hath weight, elaſticity, and is replete with the nitre of the atmoſphere, will not anſwer their natural purpoſes, and life will ſoon fail; even although they receive air which has elaſticity enough to promote the alternate ſwelling and ſubſiding of the veſicles, which would anſwer all the ends of this theory: if this air has only paſſed through the fire, or, by any other means, has been robbed of its nitrous particles, it will not anſwer the purpoſes of life.

Secondly, The experiments which the ingenious Dr. *Hook* exhibited before the Royal Society, will ſerve to demonſtrate the abſurdity of this opinion. This learned gentleman, having fixed the noſe of a double pair of bellows in the wind-pipe of a dog, cut off his ribs, diaphragm, and pericardium, and pricked all the outer coat of his lungs, that plenty of air might paſs off thereby; he then, by keeping a conſtant blaſt, kept the lungs continually full, and without any motion. The dog ſurvived all this, and his heart beat regularly as before. This is ſufficient to undermine all the aforeſaid plauſible theory; for it very evidently appears, that the animal can live, and his circulation be regularly carried on, when the veſicles are conſtantly and equally diſtended; and from hence it follows, that there is no occaſion for the innumerous angles and points of contact, which are the baſis of this modern theory of animal heat. So far am I from being of the opinion that the lungs are the parts from whence animal heat is derived, that I really believe that the blood is rather cooled than heated in the lungs; for, to me, it ſeems to be a very unfeaſable opinion, that the lungs, a looſe ſpungy body, beſpread with innumerable air bladders, to which the blood veſſels are every where almoſt ſuperficially annexed, ſhould, by the cold air's ruſhing into theſe veſicles, and touching, or almoſt touching, theſe ſmall ſtreams of blood, contribute, by any means, to make this fluid hot. That the blood, in the lungs, is rather cooled than heated, I think will appear very obvious to any perſon, who conſiders of the refreſhment and benefit which are received by the inſpiration of cool air in all thoſe diſeaſes which are of an inflammatory nature, eſpecially thoſe of the lungs. I have frequently given relief in inflammatory fevers, and in the inflammatory ſtate of the ſmall pox, by opening a window, or conveying a ſtream of freſh air for the patient to breath in. When we are, through violent exerciſe, or otherwiſe, heated to a great degree, how refreſhing do we find the cool air? in fact, we are ready to periſh without it; and, by it, how ſoon are we cooled, and the violent pain and anguiſh which we labour under removed?

Thirdly, If the blood was heated in the lungs, according to this modern opinion, we might be apt to imagine that we ſhould want much leſs of their office when we are warm, than when we are cold, for the heat of our bodies would do much of their function, whereas the contrary is continually obſerved. When we are hot, we want the cold air to cool ourſelves; we breath quick and full; and when we are cold, we endeavour to get warmed by ſome other means, as we evidently perceive that the air will not affect this, but makes our reſpiration more ſlow and ſmall; conſequently the action of the air, on the blood in the lungs, is rather to cool than heat it.

Fourthly, If the blood does owe its heat to the action of the lungs, then muſt we ſearch after another ſource of heat in the fœtus, and in the egg; for it will be obſerved, that a ripe fœtus, after it is extracted from the mother, but continuing within its membranes, can live for near twelve hours by its own heat, without any aſſiſtance from the lungs. And, again, it will be obſerved, that towards the end of incubation, when the chick is formed, the egg may be left by the dam, in a cold place and ſeaſon, for a much longer ſpace than would be ſafe for its preſervation, if all its heat depended on her;

nay, long enough for an egg, not impregnated with any warm principle, to become of the temperature of the atmoſphere ; yet, on opening it, the chick ſhall neither be cold nor dead.

Thirdly, It is generally taught, that this heat is owing to the mutual attrition of the arteries and blood ; and thoſe who ſupport this opinion not only endeavour to prove it by experiments, but to account for it. 1*ſt*, They endeavour to prove this by many experiments, ſuch as the following. If an artery, which conveys blood to any part, be cut, or tied, that part immediately turns cold. 2*dly*, Whenever the arteries ceaſe to move, cold and death are the immediate conſequences thereof. 3*dly*, Whenever there is a briſk circulation there is an increaſe of heat, and whenever the circulation is languid there is a decreaſe thereof. 4*thly*, Whenever a perſon labours under an acute inflammatory diſeaſe, or when he is, by violent exerciſe, forced into a heat, he has a quick and ſtrong pulſe ; but when he labours under any cold or leucophlegmatic diſorder, his pulſe is weak and ſlow. *5thly*, They pretend to ſay that they can, by the thermometer, diſtinguiſh the arterial blood to be hotter than that of the veins.——*2dly*, They endeavour to account for it from the laws of attrition; from the arteries being cones; and from the variety of motions, rotations, diviſions, and condenſations, which the blood undergoes; from this they account for its fluidity, florid colour, and heat. I muſt own that on a ſuperficial enquiry this theory appears to be well proved and accounted for, but upon a more narrow inſpection it will be found to be void of foundation. For, in the firſt place, what they obſerve of the arteries may likewiſe be obſerved of the nerves and tendons. An artery being tied or cut deprives the part it leads to of life and heat; a nerve does the ſame; *ergo*, the nerve may be ſaid to be the inſtrument conveying life and heat as well as the artery. *2dly*, It is very evident, that when the arteries ceaſe to move, cold and death are the immediate conſequences; but yet we find that the heat and pulſation of the arteries do not keep together in any regular proportion: For in ſome putrid caſes we find a very great heat in the body, and at the ſame time a very weak and ſlow pulſe; at other times, again, we find a very ſtrong pulſe, and a very great coldneſs. *3dly*, The motion of the arteries, and heat of the body, are, for the generality, in proportion, it is true; but that does not at all argue that theſe are the cauſe of heat, ſince both may be effects of ſome other cauſe. For inſtance, when a perſon is heated by ſpirituous liquors, wine, fire, or exerciſe, the arteries will beat quicker and ſtronger; conſequently, heat is the cauſe of this increaſe of motion in the arteries. *4thly*, What they pretend to have diſcovered by the thermometer is really a farce, and the production of ſome diſtemper'd brain: I have, a great many times, attempted experiments of that kind upon divers animals, and with a very good thermometer, but never could diſcover the arterial blood to be warmer than that of the veins. So that from hence we may juſtly conclude, that this theory is eſtabliſhed upon a very weak foundation. However, I ſhall go on, in the ſecond place, to examine the means by which they endeavour to account for their hypotheſis.

And, firſt, the heat raiſed by attrition is chiefly laid on the minute ramifications of the ſmall arteries, where almoſt every globule of blood rubs againſt the ſides of theſe minute veſſels. But it appears very odd to me, that the blood ſhould by this means acquire heat; for we are to conſider, in the firſt place, that the motion of this fluid, thro' this ſeries of veſſels, is very ſlow. Secondly, The fibres are very pliable and yielding. Thirdly, The particles of the blood are very ſoft and lubricative; conſequently, it is very improbable that heat ſhould be generated in theſe veſſels by attrition: for if the motion, and conſequently the heat, decreaſes in proportion to the ſum of the ſections of the arteries, in thoſe minute arteries, where the motion is very ſmall, the heat muſt be ſo likewiſe; and theſe veſſels, inſtead of increaſing the heat of the fluids, will be found rather to diminiſh the ſame. If the perſons, by whom this opinion was firſt propagated, had been better acquainted with the laws of attraction, the many great ſeeming difficulties, and reſiſtances, which the blood has to overcome, in this ſeries of veſſels, would never have raiſed their admiration.

Secondly, The conical figure of the arteries, is a notion that is in itſelf very abſurd and ridiculous, and has long ſince been exploded, ſo that I need not ſay any more on that head.

Thirdly, Any perſon, who has the leaſt knowledge of the animal œconony, may eaſily perceive that the different motions, diviſions, and condenſations of the blood, are not the means which give riſe to its heat. When the blood is protruded forward by the force of the heart, the diminution of its motion, by the reſiſtance which it meets with from the ſides of the arteries, is, in order to give its particles time to attract, ſubſide, or ariſe, ſo as to form the different ſecretions; nay, in ſome blood veſſels, we find the motion of that fluid ſcarcely perceivable, and exactly calculated for the ſecretion of the moſt viſcid juices. The greateſt conquaſſation of any homogeneous fluid, has never been obſerved to raiſe any heat; and how can we imagine, that only the force of the heart, and the contractions of the arteries are capable of raiſing it? Upon the whole, therefore, it very evidently appears, that this theory is without foundation, and not to be truſted to.

The fourth opinion about the cauſe of animal heat, is, that it is the mechanical attrition of the particles of the fluids on one another. What I juſt now obſerved concerning the conquaſſation of liquors, which appears to be the eaſieſt mechanical means that we have in our power of raiſing this attrition, will very clearly prove, that this opinion is founded merely on a groundleſs hypotheſis; and it does not appear clear to me, how they can even ſupport this hypotheſis. They aſſert, that mechanical attrition produces heat; but what produces this mechanical attrition?

trition? Nay, farther, they muſt not only prove what produces this attrition, but likewiſe what maintains it without diminution; for all the mechanical motions will be continually decreaſing in a reſiſting medium.

Having pointed out the opinions of ſome of our modern naturaliſts, with regard to the cauſe of animal heat, I ſhall, in the next place, endeavour to give the world my own ideas upon this ſubject; in which I muſt be as brief as poſſible, for fear of ſwelling the work beyond its firſt intended bounds.

PROPOSITION II.

To point out the cauſe of animal heat, and the means whereby this heat may be intended or remitted.

BEfore I begin to ſolve this propoſition, I muſt beg leave to lay down ſome well known facts as the baſis on which I ſhall build my ſtructure.

Firſt, All homogeneous bodies, or maſſes of matter, are capable of producing an inteſtine motion among the particles of each other; which will be greater or leſs, according to the quantity of volatile ſalts and oils which are contained therein.

Secondly, This inteſtine motion, in the minute parts of mixed bodies, is capable of producing a much greater heat than can be produced by the mutual attrition of the ſurfaces of the hardeſt bodies. For inſtance, ſulphur and nitre will raiſe a more great and ſudden heat than even flint and ſteel.

Thirdly, The particles of mixed fluids, acting on each other, are known to raiſe a more great and ſudden heat than ſolids acting upon ſolids. Every perſon, who has the leaſt notion of chymiſtry, muſt know that there are various kinds of cold liquors, which, immediately after they are mixed, will give riſe to a ſtrong heat and fierce flame.

Fourthly, No action, or attrition of any ſolid body, on any mixed fluid, has been known to produce heat; neither has any conſiderable alteration been obſerved to be created in mixed fluids, by the moſt violent mechanical agitation of their minute parts; even when joined to the ſtrongeſt action of the ſolids upon them.

Fifthly, Natural philoſophy, acknowledges chymiſtry as her aſſiſtant. A learned author obſerves, that "chymiſtry is philoſophy in "action;" ſo that we may, with as much reaſon, in accounting for the phœnomena of the human body, call in chymical as mechanical operations to our aſſiſtance.

Sixthly, All bodies, undergoing a fermentation, or where their texture is much changed by any chymical proceſs, are attended with heat.

Having now laid down theſe undeniable facts as the baſis on which I intend to build my theory, I ſhall proceed to inveſtigate this ſub-

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ſubject, and endeavour to caſt, at leaſt, ſome glimmering light thereon. In my laſt propoſition, I evidently made it appear, that there is no part of the human body, which, either by motion, or otherwiſe, is capable of producing its heat. Let us now conſider, whether our aliments, by the perpetual alterations which they undergo, and by the different properties which they acquire, are not capable of anſwering this great end.

After our aliments are received into the ſtomach, they immediately begin to ferment; as will always be the cauſe, when bodies of different natures and textures, and which are impregnated with volatile ſalts and oils, as are moſt of our aliments, are ſhut up together in ſuch a cloſe veſſel, kept always in a gentle motion, as the ſtomach of a human body is known to be. 2d, By this fermentation will a gentle heat be raiſed; which is more or leſs the effect of every fermentation. 3d, This gentle heat expands the aerial particles contained in the ſubſtance of the aliments: heat is the only means by which air may be expanded. 4th, This expanded, or rarefied air, divides the ſubſtance with which it is enveloped, and ſtrives to diſengage itſelf therefrom : air, by the force of its ſpring, is capable of dividing the moſt ſolid maſs of matter. 5th, The ſubſtance of the aliments being divided, much more of their volatile ſalts and oils are developed, and a greater degree of fermentation enſues ; and, conſequently, a greater degree of heat will be raiſed, whereby the aliments will be diſſolved and become a fluid maſs. 6th, The aliments being reduced to a ſtate of fluidity, their groſs terreſtrial parts will naturally precipitate, and their more liquid parts become more pure and thin. Thus is the heat of the ſtomach generated ; which will be found to be greater or leſs, according as the aliments are more or leſs impregnated with volatile ſalts and oils. 7th, This inteſtine motion of the aliments, and the heat which is generated thereby, ſtimulate the coats of the ſtomach, and ſpur them to action, whereby the aliments are forced out into the inteſtines.

Thus is the firſt ſcene of digeſtion performed, and thus may heat be firſt generated in an animal body. After the aliments are forced out of the ſtomach into the inteſtines, they meet with the active particles of the bile, by which they are ſaturated and refined; the fine volatile particles are conveyed to the blood by the chyloſe ducts, and the more groſs earthy particles are precipitated. This chyle being mixed with the blood, the conflict which is excited by their volatile ſalts and oils, raiſes a fermentation in this fluid, and conſequently a heat, which will be greater or leſs according to the quantity of theſe active ingredients in the aliments. The blood being thus impregnated and heated, ſtimulates, and raiſes the contractions of the muſcles of its containing veſſels, and they, in turn, give it a more rapid motion, whereby its particles are more attenuated and heated. By this means, and by the much greater diviſion which the aliments undergo in the more minute ſeries of veſſels, may the heat of an animal body be raiſed and maintained: I mean when the body is in a ſtate of health;

for

for there is a heat frequently raiſed in the body, when it labours under a diſeaſe, by putrefaction. For inſtance, in inflammatory tumours, which turn to matter, or in thoſe diſeaſes where the texture of the blood is deſtroyed, and its volatile particles developed, putrefaction is nothing more than a dividing, or diſſolution, of the particles of matter which compoſe the putrifying body. It is attended with a great inteſtine motion and heat. Philoſophy acknowledges putrefaction as the moſt ſubtile of all diſſolvents; effectually decompoſing and ſeparating all the component parts of putrifying bodies, except marine ſalt, which it will have no effect upon, and the reaſon thereof is obvious; for this fixed ſalt condenſes the volatile particles of the diſſolving body, which will be found to be nothing more than its volatile ſalts and oils, agitated by the elaſtic ſpring of its contained air.

All the fluids of the human body, when they have not ſuch a degree of motion as will prevent their volatile particles from preying upon their enveloping ſubſtance, are very apt to putrify; nay, even the blood, lymph, urine, *&c.* taken out of the body, after ſome time, become highly putrid, notwithſtanding they have not the leaſt degree of motion, and are placed in a cool air. And, farther, it does evidently appear, that if every part of our juices hath not a proper out-let to detach off its acrid fermenting particles, that part of our juices, although ſtill within the laws of the circulation, will fall into an inteſtine motion, and change to a putrid matter. For inſtance, if the urinary paſſages were obſtructed, how ſoon would the human body grow putrid, by that noxious fluid being retained therein? The ſame may be ſaid of the perſpirable matter, or any other evacuation. In conſumptive caſes, or hectic fevers, which owe their origin to ſome internal ulcer, when ſome of the putrid matter is mixed with the circulating fluids, how ſoon do we ſee nature diſpoſed to throw it off by ſome colliquative evacuation, ſuch as ſweating, purging, or urine; and if we perceive that this evacuation is, by any means, retarded, what a violent heat will be immediately raiſed in the body: therefore, from hence, we may judge of the great error of thoſe perſons, who would ſtop the violent evacuations, which are the ſymptoms of a hectic fever or a conſumption, before they had intirely removed, or, at leaſt, palliated the cauſe thereof.

Seeing, then, that the warmth of our bodies can produce ſuch a change on any portion of our juices, which has not a proper degree of motion, retained in the ſame; how natural is it for us to judge, that the ſame heat makes a greater and quicker change on the other parts which are contained within the veſſels; ſince they are continually in motion, and frequently meeting with new mixtures of heterogeneous fluids, which are capable of raiſing new inteſtine motions. Indeed, our circulating fluids cannot contract the ſame degree of acrimony as thoſe whereof we have juſt now mentioned, becauſe their acrid particles are continually detached off by perſpiration, ſweat, urine, *&c.* and that, as faſt, almoſt, as they are formed: in the courſe of circulation, they arrive at divers out-lets, by which they are detached off before they can by any means hurt or decompoſe the remaining maſs. During their courſe to the extreme parts of the body, and even to the other ſecretory glands, the continual alterations and attenuations which they are undergoing, are ſufficient to maintain a proper degree of warmth in the body; ſuch as is required to anſwer the purpoſes of nature. When theſe evacuations are ſtopped, dangerous fevers, and other acute diſeaſes, will be the conſequence thereof.

I do not doubt but that a great many objections will be made to this theory, and that one of the principal will be, the warmth of the fœtus; but, to anſwer this objection, I need not be much at a loſs. When we conſider the fœtus receiving its nouriſhment from the maternal body, joined to the ſame by a large veſſel, ſubject to her paſſions, and warmed as ſhe is warmed, we can regard it in no other light, but as a part of her body, and not as a perfect animal, till it is removed from the ſame, 'till it breathes, and till it receives nouriſhment by the mouth: when the aforeſaid animal proceſs may be juſtly ſaid to begin. But farther, to anſwer all the objections which might be artfully made to this theory, would be a taſk both difficult and laborious, and ſuch as this undertaking will not admit of: however, I will do all that lies in my power to caſt ſome few rays of light upon this ſubject, which, I hope, will be the means of exciting an abler pen to give the world a clear illuſtration of the ſame.

When we conſider the ſtate of the greateſt part of the viſcera of a fœtus, and the changes which it undergoes when the thorax is dilated with air, it will evidently appear, that the maternal blood does not make its way through more than one third part of its body. The lungs, during this ſtate, are in a great meaſure idle. The liver appears as if it had been the lateſt formed, and to be void of employment: indeed there is bile in the gall bladder, but it is certain that no part of it has been poured forth.

The ſtomach and guts are full of a viſcid ſlimy matter; but appear to be entirely inactive. The kidneys have had little exerciſe. The glandular parts of the whole body are in a ſtate of relaxation, and have their recepticles full of a ſeeming viſcid matter; and, in fact, all the lymphatic and chyloſe veſſels appear to be in the ſame ſtate; all full and ready to empty themſelves. Immediately after the fœtus begins to breathe, the lungs are filled with air, the thorax is diſtended, the cheſt heaves, the diaphragm preſſes down, and the belly is compreſſed. Immediately afterward, when the muſcles of the abdomen contract, they return the force impreſſed upon them, and by their re-action, the cavity of the thorax is again ſtreightened, the air is driven out, and breathing begins. Soon after we perceive the ſtomach and inteſtines, by the agitation they receive from theſe motions, begin to diſcharge their viſcid contents. The blood, likewiſe, by receiving an additional motion, is forced to take a new courſe through the lungs. The kidneys and bladder immediately diſcharge their contents;

the glandular and lymphatic ſyſtems are compreſſed, and preſs forward their contents; the chyliferous veſſels are entirely opened, and empty themſelves into the ſubclavian vein, and ſo into the blood: from whence this fluid is re-animated, and a new circulation begins. Thus the motions of a perfect animal are begun, and thus may animal heat be firſt generated.

Perhaps ſome perſons will be apt to aſk me, whether muſcular motion does, by any means, contribute towards the generating, and maintaining of animal heat. To this I anſwer, that muſcular motion, in proportion to its violence, does quicken the motion of the blood, and by quickening its motion, it increaſes its fermentation, by developing of its volatile particles; and by increaſing its fermentation, it increaſes the heat of this fluid; conſequently, muſcular motion may be ſaid to be a means of increaſing animal heat. The temperature of the atmoſphere, has likewiſe ſome influence on animal heat. In a hot atmoſphere, the particles of air contained in our blood are rarefied, and a gentle fermentation is raiſed in that fluid thereby; our inſpirations are more full and frequent (occaſioned by the heat raiſed in the fluids by the fermentation) and our rarefied blood circulates with a much greater velocity. Again, on the other hand, when the atmoſphere is very cold, the particles of air contained in our fluids are condenſed, their volatile particles are enveloped and rendered inactive, and their attractive, or centripetal force is increaſed; conſequently their heat will be diminiſhed: the effects of which are, we breathe much ſeldomer, and with a leſs diſtention of the thorax; and as the blood becomes more denſe, the circulation becomes more calm.

PROPOSITION III.

Of the different degrees of heat in an animal body, how raiſed, and how allayed.

HAving, in my laſt propoſition, pointed out the nature of animal heat, and the means by which it may be generated in the body, the preſent propoſition leads me to inveſtigate the means by which the different degrees of this heat may be raiſed and allayed in the ſame.

As it is probable animal heat is chiefly owing to the continual alterations and attenuations of our aliments, occaſioned by the fermentations which they undergo, during their paſſage through the body; whatever aliments, therefore, are compoſed of ſuch particles as are capable of raiſing the greateſt fermentation, thoſe aliments are capable of raiſing the greateſt degree of heat; more eſpecially when they are received into ſuch bodies as will forward their operation by a continual agitation. Aliments, which have in their compoſition the greateſt quantity of volatile particles, *i. e.* of ſalts and oils, will be found to raiſe the greateſt fermentation when received in the body, *ergo*, aliments of this kind will be found to raiſe the greateſt degree of heat.

Perſons, therefore, who would allay the heat of their bodies, ſhould chuſe ſuch aliments as have the leaſt quantity of volatile particles in their compoſition; or, if the heat is acute and requires medicine, ſuch medicines as are abounding with acids, viſcid particles, or fixed ſalts. When we would endeavour to preſerve our bodies in health, and our conſtitution in an agreeable degree of warmth, we ſhould chuſe ſuch kinds of aliments as are moderately impregnated with theſe active particles, and uſe moderate exerciſe, for the proper agitation of the ſame. If we feed on aliments whoſe particles are viſcid and tenaceous, we ſhall immediately begin to grow corpulent. This, in fact, is the chief cauſe of corpulency: indeed, wine, ſpirituous liquors, and aliments which are ſtrongly impregnated with volatile particles, will ſometimes cauſe an unweildy bulkineſs; but this generally happens in perſons whoſe glands are very weak and lax, and are not capable of giving a proper reſiſtance to the force of the fluids, whereby the contents of the larger veſſels are forced into thoſe which are ſmaller. The viſage of ſuch perſons, for the moſt part, looks red and bloated.

If a perſon is very bulky and unweildy, and deſires to be more thin, he ſhould omit all kinds of aliments which are viſcid and tenaceous; all kinds of fat meats, eſpecially pork and gooſe; and too frequent drinking of ſpirituous liquors: the former, becauſe his digeſtive powers have not ſufficient force to aſſiſt their own diſſolvents, whereby they may be ſo minutely divided as to paſs freely off the body. The 2d, becauſe they are compoſed of ſoft adipoſe matter, which greaſes the fibres and glands, takes off their elaſticity, and renders them uncapable of performing their functions. Baked meats, likewiſe, will not be proper for ſuch a perſon, as they take off the elaſticity of the fibres, and leave them in a ſtate of relaxation. He ſhould uſe ſuch meats as are eaſily attenuated. Vegetables, and vegetable acids, will be very uſeful in this caſe; to which we may add moderate exerciſe, and ſhort ſleep.

But, on the other hand, a perſon who is very thin, and would be more fat or fleſhy, ſhould feed frequently on fat aliments, or the fat of animals; ſhould drink freely of wine or ſpirituous liquors, or, in fact, of malt liquors; ſhould uſe but very little exerciſe, and ſleep a good deal; ſhould moderate his paſſions, and ſhould be careful that he uſes no acrid or volatile ſubſtances. By this means he may relax the ſyſtem of his fibres, and make their contractile powers more pliable, ſo as to ſuffer the particles deſtined for their nutrition to adhere to them.

CHAP. IV.

Of the parts of the body which are affected in conſumptions.

PROPOSITION I.

Thoſe parts of the body which are deprived of their nouriſhment may be properly ſaid to be the parts affected in conſumptions.

PRevious to the ſolution of this propoſition, I muſt obſerve, that the aliments which we receive into our bodies, after they are minutely divided, by the joint operation of our digeſtive powers, and the ſolvents contained within themſelves, and after their acrid particles are detached off by the ſeveral evacuations of our bodies, are, again, converted into a ſolid ſubſtance, for the nouriſhment of thoſe parts whoſe ſubſtances are continually rubbing off, by their continual frictions ſrictions and agitations : as thus, there is a tranſmutation of the divided aliments into chyle, of chyle into blood, of blood into ſerous and lymphatic juices, and of ſerous and lymphatic juices into nouriſhment. But, when the body recedes from its natural ſtate, *i. e.* when the fibres begin to loſe their ſpringineſs; the muſcles to relax, and the digeſtive powers to be weakened, then begins a retrogreſſion or change in the laws of the animal body. The actions of the ſolid parts are not ſufficient, when joined with the ſolvents contained in the aliments, to minutely divide them, and carry their moſt fine particles for nutrition to the extreme parts of the body. Thoſe parts, by being continually agitated, have a great deal of their adipoſe and nutritive particles rubbed off, and, for want of being continually repleniſhed with a ſufficient quantity of nutriment, fall into a conſumptive ſtate. The larger veſſels ſoon become obſtructed by the unattenuated and undigeſted aliments, the body is thereby deprived of nouriſhment, and the conſumption becomes univerſal in the ſame. When ſome parts of the body are, by this means, obſtructed, the circuit of the fluids will be ſhortened, and a plethora be cauſed, a ſuper-abundant quantity of blood will be forced thro' the lungs, and, as the fibres of that organ are equally debilitated with the reſt of the body, it is not able to diſcharge properly the ſame; an inflammation is ſoon raiſed in its ſmall veſſels, which, perhaps, for want of being ſpeedily remedied, turns to an ulcer. And as, in a healthful ſtate, it is abſolutely neceſſary that the fluids ſhould loſe their fluidity before they can be fit to nouriſh the ſeveral parts of the body, ſo in this diſeaſed ſtate it is equally neceſſary that the ſolids ſhould liquify, diſſolve, aſſume the nature of fluids, and melt down from their adherence to the more fixed parts of the conſtitution. Perhaps, ſome perſons may imagine that this change is impoſſible to be brought on; but I muſt obſerve, that except it is performed in the manner before-mentioned, a conſumption can never ſeize upon the conſtitution: as thus, a part can never be ſaid to decay, except there is a waſte of its ſubſtance; ſolid bodies cannot circulate through a minute ſeries of veſſels; therefore, a part muſt have its ſubſtance liquified, and this liquified matter be either returned upon the circulation, or detached off by ſome evacuation, before that it can fall into decay; *i. e.* after it is deprived of its nouriſhment.

PROPOSITION II.

Of the order and progreſs with which any part, deprived of its nouriſhment, decays.

WE are hereby to underſtand, that as ſoon as the fibres begin to loſe their ſpringineſs, the diſſolved aliments, by not being properly agitated, will again cohere, and form obſtructions, whereby the body will ceaſe to be nouriſhed; and as ſoon as the body ceaſes to be nouriſhed, the parts that firſt fall into decay, will be thoſe which are the moſt ſoft and covered with fat; as the fat, and the oily particles, which plump up the muſcles, are the moſt eaſily rubbed off by attrition, liquified, and re-abſorbed by the circulation, or forced off by ſome evacuation. The ſævum, or thoſe ſolids that are of a harder texture, going next; and the more fleſhy and muſcular ſubſtances are the laſt that decay. This is the order and progreſs in which a conſumption does increaſe upon the conſtitution. But I muſt farther obſerve, that even the very muſcles themſelves muſt firſt diſſolve and liquify, before they can be diſcharged off by any of the evacuations.

PROPOSITION III.

Of the evacuations which generally attend conſumptions, and the manner of their diſcharges.

WHEN the fat, and moſt pliable parts of the body are, in a great meaſure, diſſolved and waſted, then the more fleſhy and muſcular parts begin inſenſibly to diſſolve, and diſunite from the conſtitution: therefore, whenever the body ceaſes to be nouriſhed, it begins to decay, and the particles of its ſolids to liquify; and to be re-abſorted into the circulation; whereby the quantity of the circulating maſs will be much increaſed, diſtends its containing veſſels, and either ruptures the glands of the inteſtines, and ſo gives riſe to a colliquative diarrhæa, one of the chief effects of this diſeaſe; or, if the glands of theſe parts have a ſufficient degree of elaſticity or ſtrength to counteract its impulſe, the torrent is then turned towards the kidneys, and gives riſe to a diabetes, or, at leaſt, a much larger diſcharge of urine than the conſtitution can well bear: but, if the renal glands likewiſe withſtand its impulſe, it bends its courſe towards the glands of the ſkin, and is diſcharged in profuſe ſweats.

If we conſider critically the nature of the human body, it will evidently appear, that the glands of the ſkin are the moſt convenient out-let to diſcharge off any ſuperfluous quantity of juices; for this ſeries of glands are every where the extremities of the veins and arteries, and as the extreme parts of thoſe veſſels are the fartheſt from the centre of heat and motion, it is very evident that they will let paſs thoſe juices which cannot find a paſſage any where elſe. But as this doctrine may appear ſtrange, when ſuperficially obſerved, I ſhall endeavour to make it as clear as poſſible.

When the body is in health, we may obſerve, upon the application of cupping glaſſes, and the extraction of blood thereby, that the attracting or centripetal force of that fluid, near the ſurface of the body, is much ſtronger than in any of the parts nearer the center of heat and motion; and the reaſon thereof is obvious. For, in the firſt place, if we conſider that the fluids, when they arrive to this minute ſeries of veſſels, have a much leſs degree of velocity than they had in their paſſage through the aorta, (the difference of the velocities of the blood in the aorta, and in the cuticular ateries, is, by calculation, found to be as 615 to 1, nearly; ſee my treatiſe on fevers) conſequently the agitation of its particles will be much leſs, and its attractive force greater.

Secondly, The blood in the capillary arteries has not that degree of heat which it has in the larger veſſels, whereby its aerial particles are more condenſed, and its attractive force increaſed. The blood and juices moving thus gently through theſe capillary veſſels, may be eaſily made to diſcharge their ſerous contents by exciting the fibres to action, which warmth and ſtimulus will not fail to do; whereas, in the larger veſſels, the motion and heat of this vital ſtream would be ſo great as to keep the ſerous parts in perfect fuſion with the globular parts. But if neither the cuticular glands are yet ſo much weakened as to give way to the impulſes of this glut of juices, charged upon the conſtitution, from the decays of the inward parts, theſe juices then return upon the conſtitution, and, by their increaſing the inteſtine motion of the circulating maſs, raiſe the heat of the body, charge an additional load upon ſome of the weakened organs, and, perhaps, deſtroy entirely their action. Theſe organs will be ſooneſt weakened and deſtroyed, whoſe ſituation is neareſt the center of heat and motion, and whoſe texture is compoſed of the fineſt fibres. The chief of theſe organs is the lungs, an organ which is compoſed of the moſt fine and tender fibres, and through whoſe cavities the whole maſs of blood is continually paſſing and repaſſing. If this ſuper-abundant quantity of juices ſhould happen to be accumulated upon the capillary veſſels of the lungs, as 'tis more than ten to one that it will, it generally ruptures the fine arteries of this organ, and an hæmorrhage, or, commonly ſpeaking, a ſpitting of blood enſues. This is a ſymptom incident to conſumptions, and ariſes from the natural weakneſs and thinneſs of the coats of the veſſels of this organ, which are incapable of making reſiſtance to the extraordinary force and preſſure of the maſs of blood.

Having conſidered the manner of the diſcharges made by the evacuations which are incident to conſumptive caſes, I ſhall now proceed to diſcover the internal parts which are affected, and which may juſtly be called the chief means that give riſe to thoſe diſcharges. The firſt of thoſe internal parts, which are affected in this diſeaſe, is the ſtomach, a veſſel which may, without any impropriety, be called the labatory of nature. Here all our aliments undergo their firſt diviſion and attenuation, by their own diſſolvents; being agitated by its gentle contractions. If, therefore, the contractive powers of this organ are ſo very weak, that they cannot give ſuch aſſiſtance to the diſſolvents, contained within the aliments, as is ſufficient for their minute attenuation, and to concoct, digeſt, and aſſimulate them into good chyle, which is generally the cauſe in the beginning of conſumptions; theſe crude juices will be charged upon the conſtitution, which, if frequently repeated, will, in time, create obſtructions in ſeveral parts of the body, and weaken the actions of the ſolid parts: that part of the body will firſt ſuffer which is of the weakeſt texture; which, after the ſtomach, in phthiſical conſumptions, will be obſerved to be the lungs, becauſe of the extreme fine make of this bowel. If the conſumption is of the whole body, commonly called an atrophy, the other parts of the viſcera are more liable to be attacked. In the diſſections of thoſe who have died of this ſpecies of conſumptions, it will generally be obſerved, that the ſpleen and liver are ſtuffed with viſcid, nay, ſometimes with calculus matter, and extended much beyond their natural dimenſions. It is very obvious this is owing to the ſuper-abundant quantity of viſcid juices forced upon theſe parts, by the impulſes of the circulation; and by their fibres not having ſufficient ſtrength to give reſiſtance to the ſame, they accumulated thereon, and thereby ſwelled theſe bowels ſo much beyond their natural magnitude: but not only theſe organs, but the greateſt part of the viſcera, as the pancreas, meſentery, omentum, and peritoneum, are all obſerved to be more or leſs obſtructed and ſwelled in conſumptive caſes.

CHAP. V.

Of the remote cauſes of waſtes and conſumptions.

PROPOSITION I.

There muſt be a diſpoſition to, before there can be a generation of a diſeaſe; i. e. *all diſeaſes have ſome pre-exiſting cauſes.*

WHenever the conſtitution begins to deviate from its natural ſtandard, or, otherwiſe ſpeaking, whenever the aliments are forced upon the conſtitution in an undiſſolved ſtate; whenever the fluids begin to loſe their texture and grow acrid; and whenever the fibres of the body begin to loſe their ſpringineſs and elaſticity, we may juſtly conclude that a diſeaſe is generating, which will be more or leſs violent, according to the nature of the pre-diſpoſing cauſe. Conſumptions, therefore, in their beginning, often ap-

approach by very ſlow ſteps, and give us but very little warning before they are actually preſent: however, upon a critical enquiry, we may generally perceive ſome foreboding ſymptoms before the diſeaſe has actually ſeized upon the body, and I am perſuaded, by proper applications, may ward off the approaching evil. Conſumptions are ſometimes hereditary, the morbid taint being originally fixed in the body while in embrio, and intermingled with its firſt principles of life. This to me appears to be the cauſe of thoſe children who are continually ſubject to ſcrophulous tumous, glandulous ſwellings, and the rickets, which ailments are ſome of the chief pre-diſpoſing cauſes of conſumptions. But this ſpecies of diſeaſes are not ſo frequently the effects of our parent's miſdemeanors, as they are of our own: for if we examine carefully the nature of this diſeaſe, and the bodies who are the objects of its prey, it will plainly appear, that we, ourſelves, are voluntarily its chief encouragers; nay, and even, with all our might, aſſiſt its operations, by our living unſuitable to our conſtitutions; thereby ſurcharging the ſolids, breaking the texture of the fluids, and, in fact, uſing our utmoſt endeavours to ſtrain and break the ſprings of life. Some bodies are, by nature, endued with ſtronger conſtitutions than others, and therefore they will be capable of continuing their vicious actions, and warding off the ſevere ſtroke of this diſeaſe, for a longer time: however, it will generally be obſerved, that perſons who are of the moſt ſtrong and robuſt conſtitutions do fall victims to this diſeaſe much ſooner than thoſe whoſe habit of body is much more tender and weak; and this is a misfortune generally attending thoſe perſons, that they pride themſelves upon their ſtrength, and are frequently drawn in to overcharge themſelves with exceſs, until, by repeated ſhocks, their ſprings of life are much ſtrained, and frequently broken; when thoſe poor unhappy wretches are forced to cry out for aſſiſtance. But we may obſerve ſeveral perſons attacked with conſumptive diſeaſes, which neither owed their origin to the vices of their parents, nor their own irregularities, but they naturally ariſe

riſe from the mal-formation of ſome of the principal viſcera. This diſpoſition is, for the moſt part, diſtinguiſhed by a pale and thin complexion; a meagre habit of body; and a dead ſunken look: the veins appear as if they were coloured with a light blue. Their paſſions are very quick and wavering, and they are uncapable of bearing any diſappointments, ſorrow, or contradiction, without the greateſt emotion and diſcompoſure of ſpirits; which, frequently, cauſe great irregularities of the ſame, and diſpoſes the body to conſumptions and decays; and the reaſon thereof is obvious. For perſons of this complexion and make are, upon taking the leaſt cold, or irregularity in the non-naturals, whereby the quantity of their fluids is increaſed, ſubject to coughs, wheezings, and ſhortneſs of breath, by the lungs being oppreſſed with a ſuper-abundant quantity of blood, and not having room to expand themſelves: the effects of which are inflammatory fevers, and peripneumonies, which frequently diſpoſe this bowel to obſtructions, ſchirrous ſwellings,

lings, *&c.* that for the moſt part, terminate in a phthiſis.

PROPOSITION II.

Other diſeaſes are frequently the præ-diſpoſing cauſes of conſumptions and decays.

AS I have, in my foregoing propoſition, evidently proved that there are peculiar habits of body which are the præ-exiſting cauſes of this ſpecies of diſeaſes, ſo the preſent propoſition leads me to prove that there are other diſeaſes which tend to the ſame purpoſe; nay, and which are the chief means of ſubjecting the body to their attacks. The chief of which are violent inflammatory fevers, eſpecially the peripneumony and pleuriſy, badly remedied, *i. e.* where bleeding, and other plentiful evacuations, have not been ordered at their firſt attack: thoſe perſons, who are ſubject to theſe diſeaſes, and to inflammations of the lungs, do very rarely eſcape impoſthumes of that bowel, which always diſpoſe the conſtitution to conſumptions. Chronical diſeaſes are likewiſe capable of diſpoſing the body to conſumptions; the chief of which are the ſcurvy and the jaundice. It is abſolutely impoſſible for an atrophy to get any footing in the body, except the former of theſe diſeaſes has preceded; whoſe firſt attack depends upon the relaxation of the capillary fibres, which, when they are not capable of giving their contained fluids a degree of agitation that is ſufficient to expand their aerial particles, and increaſe their contrifugal force, let the particles thereof run into cloſſer contracts than is conſiſtent with the laws of the circulation under a free ſtate of health; whereby the attractive force of the blood is increaſed, and, by its not having a proper quantity of direct motion, it falls into inteſtine motions, grows acid, and ſoon after deforms the ſkin with ſores and boils. The ſcurvy, therefore, is the firſt ailment the body labours under, after the fibres have loſt their ſpringineſs and elaſticity; and is one of the chief præ-diſpoſing cauſes of an atrophy. The jaundice more frequently gives riſe to a phthiſis than an atrophy, as does likewiſe a cough, and an aſthma. The former does frequently pave the way to a phthiſis, eſpecially in thoſe perſons whoſe conſtitutions are inclined to a hectic, or whoſe lungs and bronchial veſſels are of a weak texture, and ſubject to defluxions of rheum. Perſons inclinable to thoſe indiſpoſitions, are apt to be afflicted with coughs, upon the leaſt cold taking or inflammatory ſtate of the blood, which often affect the lungs before they are aware thereof, and give riſe to an incurable phthiſis. An aſthma, which is an obſtruction of the tender veſſels of the lungs, is frequently the immediate cauſe of this diſeaſe. I think that people, when they carefully conſider the nature of coughs and aſthmas, ſhould be exceedingly cautious how they let theſe diſeaſes prey upon the conſtitution; for I may venture to affirm, that great numbers have loſt their lives by neglecting to remedy theſe ſeeming ſlight diſeaſes in due time.

CHAP. VI.

Of the firſt viſible effects of conſumptions and decays, after the fibres have loſt their ſpringineſs, and the attractive or centripetal force of the blood is increaſed.

PROPOSITION I.

The firſt viſible effects of a conſumption, or decay, will be more or leſs violent according to the violence of the præ-diſpoſing cauſe.

IN my foregoing propoſitions, I have endeavoured to prove, that we can never perceive any decays to attend the conſtitution until it ceaſes to be nouriſhed; and, according to the principles which I have propoſed, it can never ceaſe to be nouriſhed, until the fibres loſe their ſpringineſs and elaſticity, *i. e.* until they they are ſo far weakened that they cannot give proper aſſiſtance to the diſſolvents, contained within the aliments, for the minute attenuation of the ſame : and as ſome perſons have a greater ſtrength of fibres than others, they will be able to ward off the diſeaſe for a longer time; but then, when it does attack thoſe perſons of a ſtrong robuſt conſtitution, it increaſes with great violence and rapidity : and, laying aſide external accidents, the viſible effects thereof will be more or leſs violent, haſtened, or retarded, in proportion to the ſpringineſs and elaſticity of the fibres of the ſolid parts.

PROPOSITION II.

The firſt viſible effects of this diſeaſe, will generally be perceived on thoſe parts which are moſt affected with the ſame.

WHenever, therefore, the machinulæ of the fibres begins to fall below its natural ſtandard, the body will immediately begin to fall into decays and waſtes, which will firſt appear in thoſe parts where the fibres are the weakeſt, and thoſe parts will be different according to the different conſtitution of the patient: for inſtance, if a perſon of a hectical conſtitution ſhould chance to be ſeized with a conſumption, it is ten to one but it falls upon the lungs, ulcerates that organ, and gives riſe to that ſpecies which is commonly called a phthiſis; whereas, on the other hand, if the conſtitution is more cold, *i. e.* if the ſolid parts are more lax the ſame decay will make its progreſs without an ulcer of the lungs, and is commonly call an atrophy: ſo that from hence we may eaſily perceive, that the difference between an atrophy and a phthiſis depends entirely upon the conſtitution of the patient, and that, by knowing the ſtrength of the patient's fibres, and the ſtrength of the texture of his fluids, we may ſafely prognoſticate the effects of an approaching decay or conſumption. Whenever the fibres of any part begin to loſe their ſpringineſs, that part will immediately appear to be affected, and according as it is more or leſs neceſſary to animal action, may we judge of the diſeaſe, as being more or leſs dangerous, or violent.

PROPOSITION III.

Of the firſt viſible effects which we perceive, after the elaſticity of the fibres begins to decreaſe, and the body begins to ſuffer from the attacks of a conſumption.

IN an atrophy, where the general frame of the conſtitution begins to weaken, the firſt effects which we diſcover to make any impreſſion upon the body, are thoſe of the hypocondriacal kind, and low ſpiritedneſs. After theſe have continued for ſometime, the patient begins to loſe his appetite, and will ſicken even at the ſight of meat. He diſcharges, by vomit, every thing he eats that is burthenſome to the ſtomach, or above the ſtrength of the weakened fibres of this bowel to aſſiſt its own ſolvents for to promote its attenuation. But notwithſtanding a weakneſs of the ſtomach, and a bad appetite, are effects which every ſpecies of this diſeaſe frequently give riſe to, yet it will generally be obſerved, that ſome perſons, who labour under pulmonic conſumptions, will keep up a good appetite even to their dying day: but, by the bye, thoſe perſons are always of the moſt ſtrong and robuſt conſtitution. When the lungs are attacked with that ſpecies of this diſeaſe called a phthiſis, the firſt effects which it generally produces are a cough and hoarſeneſs. This cough is very different from that which is the effect of a cold freſhly taken; for a cough, which ariſes by this latter means, emits a ſharp firm ſound, with an eaſy reſpiration, and is, for the generality, attended with a defluxion of ſerous matter upon the veſſels of the bronchia. Whereas, on the other hand, a cough which is produced by an inflammatory, or viſced matter ſtuffing the lungs, occaſioned by the impaired ſtate of their fibres, is always joined to a hoarſeneſs, and a flat hollow ſound, and its fits are very quick and ſhort. Gentle coughs, created by colds taking, are generally attended with a thin matter, which is eaſily expectorated; whereas conſumptive coughs are always attended with a thick putrid expectoration,

tion, even when the diſeaſe, of which this is a ſymptom, is in its firſt ſtage. When it comes to its laſt ſtage, and when an ulcer is confirmed in the lungs, this matter becomes noiſome, and difficult to expectorate. This cough will likewiſe be found to vary, according as the diſeaſe is more or leſs acute; for in the moſt acute conſumption, this cough will be very violent, eſpecially towards night, with but very little intermiſſion. The expectorated matter, in this caſe, is thin, ſerous, acrid, and tickles the bronchial veſſels, and continues ſo even to the laſt ſtage of the diſeaſe.

As the expectorated matter, in conſumptions, is nothing more than ſerous and lymphatic juices ſecreted by the bronchial veſſels, ſo will it ariſe more viſcid, or liquid, in proportion as its ſecretion is more quickly or ſlowly performed; and its ſecretion will be more quick or ſlow in proportion to the velocity of the circulation, and the elaſticity of the fibres: therefore, in thoſe conſumptions which are very acute, and where the velocity of the circulation is very quick, the expectorated matter will be very thin, acrid, and unconcocted; and the cough will be violent; but in thoſe conſumptions which are more ſlow in their progreſs, the expectorated matter will be more tough, viſcid, and in greater quantities; but then the cough will be much leſs violent and frequent. After this troubleſome ſymptom has harraſſed the patient for ſometime, he feels violent pains in his breaſt and ſide, which, in ſome emaciated conſtitutions, are almoſt unſupportable, attended with a very difficult reſpiration, and, at certain times, ſeem to ſhoot through the pectoral muſcles. The patient becomes ſubject to cold ſhivering, and, even in the height of ſummer, is never eaſy, except he is very warmly cloathed, or hovering over the fire. He now begins apparently to waſte; his cheeks, and the palms of his hands, after meals, glow with heat. The belly is, for the moſt part, bound, and the urine of a very high colour. Theſe are the firſt effects which we perceive to be produced by this ſpecies of diſeaſes. Soon after the body may be perceived to waſte apace, and thoſe parts ſooneſt give way, whoſe particles have the leaſt degree of coheſion; which, according to the nature of diſolving bodies, will be thoſe of the moſt ſoft and ſpongy texture, and abounding with fat: thoſe parts firſt melt down, and paſs off by ſome of the evacuations. We generally perceive the ſtools, and urine, of thoſe who labour under this diſeaſe, to abound with an oily matter; which is nothing more than the liquified fat paſſing off by thoſe evacuations. When the fat begins thus to liquify, and be diſcharged off the body, the muſcles of the ſeveral parts abounding with the ſame, look meagre and thin; for this ſubſtance is the chief means of filling up the hollow interſtices of the muſcles, and thereby making the aſpect appear more agreeable; which, without this aſſiſtance, would look hollow and unſightly. The coſtiveneſs, which I juſt now obſerved to be one of the firſt viſible effects of a conſumption, makes a great many perſons believe that the diſeaſe will not be very violent. Whereas, in fact, we may rather judge the contrary by the appearance of this ſymptom; for it will always be obſerved that this is chiefly occaſioned by the increaſed heat of the body, which will not fail to melt down its oily and fleſhy ſubſtance. Perhaps, in the firſt place, the ſuperfluous juices may as well paſs off by urine, or an increaſed perſpiration, as by ſtool; whereas, when the fibres, which compoſe the coats of the bowels, begin to relax, and give way to the glut of juices which is in perfect fuſion in the body, the colliquative evacuation by ſtool may be more large than it would have been, had it began more early: therefore, whatever hopes the patient may entertain in the beginning, for the favourable termination of the diſeaſe, by the mildneſs of its effects, in the progreſs, he will perceive them all to vaniſh. This melting flux, generally obſervable in a conſumption, is very different from that ſimple diarrhæa which owes its riſe to colds taking, or any diſorder of the ſtomach or bowels; and may be juſtly compared to thoſe violent diſcharges which paſs off by this out-let in high fevers, near the height of the diſeaſe, where bleeding has been omitted in the beginning; diſcharges made from the blood itſelf, that is ſurcharged with a load of hot and acrid juices, which at laſt burſt out on the glands of the inteſtines, and are evacuated in the form of looſe ſtools, which generally rid nature of her ſuperfluous load, and, for the preſent, ſeem to give relief to the afflicted patient. A diſcharge of matter thus made from the blood, muſt greatly weaken the patient's ſtrength, and be followed with a great dejection of ſpirits and melancholy. But, in conſumptive caſes, although we adminiſter medicines to brace the fibres of the inteſtines, and retard the flux, (the modern method of relieving this evacuation) yet we gain no advantage thereby in point of cure; for, if this ſuperfluous quantity of juices is prevented from paſſing off through the inteſtinal canal, they will recoil upon the conſtitution, and give riſe to hectical heats, and, in the end, be forced on the cutaneous glands, to paſs off in colliquative ſweats, which will be found to haſten on the conſumption, and bring on greater ravages upon the body, than the diarrhæa could poſſibly have done. When a conſumption is brought on by hard drinking, eſpecially of ſpirituous or vineous liquors, it will frequently be obſerved, that the patient, in the progreſs of the diſeaſe, has large and frequent diſcharges by urine; which is ſweet to the taſte, and which appears to be replete with undigeſted ſaccharine ſalts. This ſymptom very rarely appears until the conſumption has taken deep root in the body, *i. e.* until the fibres, which compoſe the glands of the kidneys, begin to loſe their ſpringineſs, and give way to the force of the blood brought thither, by the impulſe of the heart, for the uſe of that ſecretion. We may frequently perceive the urine, in conſumptive caſes, to be diſcharged in large quantities, without the leaſt ſweetneſs in its taſte, but as inſipid as pure water: in other caſes of this kind, again, it appears pale, crude, and with a large quantity of an oily ſubſtance floating on its ſurface; nay, I have frequently obſerved it with a great farinaceous ſediment. If the glands of the kidneys are able to withſtand the impulſes of the blood, then this ſuperfluous quantity of juices recoil upon the conſtitution, and is diſcharged in clammy ſweats; ſo that, in fact, 'tis this ſuper-abundant quantity of juices, generated in the body by the diſſolution of its ſolids into fluids, which furniſhes matter for thoſe diſcharges by ſtool, by urine, and by ſweat, which prove ſo diſturbing, and frequently fatal to the patient; and, indeed, it muſt be very bad practice if we attempt to ſtop either of them without firſt removing their cauſe; for either of theſe evacuations ſo ſtopped, will be found to accumulate a ſuper-abundant quantity of juices on the body, which, if it does not increaſe the other evacuations, will prove fatal to the patient. But if the fibres of the ſecretory glands are able to withſtand the protruding force of the blood, whereby its ſurcharged glut cannot obtain a vent by any of the natural evacuations, an acute fever will be raiſed, which muſt be immediately fatal to the patient, except an hæmorrhage of blood from the lungs relieves him: this will be often the caſe in the beginning of conſumptions, eſpecially when the patient is of a ſtrong robuſt conſtitution. Thus I have pointed out the effects of a conſumption in its firſt ſtage; I ſhall proceed next to point out the effects which may be perceived to happen in its progreſs.

CHAP. VII.

Of the effects obſervable in the progreſs of a conſumption.

PROPOSITION I.

The effects or ſymptoms, obſervable in the progreſs of a conſumption, will be more or leſs violent, according to the nature of the conſtitution, and the nature of the præ-exiſting cauſes.

WHEN the præ-diſpoſing cauſes of this ailment are not timely relieved, they continue to increaſe, and introduce a new chain of effects, which, according to our propoſition, will be more or leſs violent according to the nature of their cauſes; and which will prove very diſturbing, and frequently fatal, to the miſerable patient. When the evacuations prove very large, and the body thereby loſes a greater quantity of juices than it can well afford, the action of the ſolid parts will be conſiderably decreaſed, for want of that warmth, and gentle ſtimulus, which they uſed to receive from the fluids, whereby they cannot any longer influence this circulating maſs in ſuch a manner as to attenuate and properly diſtribute it, for the nouriſhment of the ſeveral parts of the body. The blood in the larger veſſels begin to fall into inteſtine motions, created by its own diſſolvents, but that in the capillary veſſels, from the ſmallneſs of its quantity, and being robbed almoſt of all theſe inherent attenuants, will begin to loſe its centrifugal quality, and to attract, grow viſcid, and give riſe to obſtructions in this ſeries of veſſels: hence ariſe thoſe ſchirrous tumours and ſwellings which attack the liver, ſpleen, and, in fact, the whole viſcera of the lower belly; hence likewiſe ariſe thoſe hectical heats which the miſerable patient is ſo violently tormented with. When the patient is of ſtrong fibres, of a dry conſtitution, and has brought on the diſeaſe by hard drinking and voluptuous living, theſe hectical heats, occaſioned by the inteſtine motions of his juices, will aſſume the appearance of an acute fever. The circulation appears to be very violent in the larger veſſels, the pulſe run high in the great arteries, the face and cheeks glow with heat, and a delirium is frequently the effect thereof. However, we are not to treat this fever in the ſame manner as an acute continual fever, becauſe it does not proceed from the ſame cauſe. An acute continual fever, which, for the generality, ariſes from the ſolids being too tenſe and elaſtic, and a ſuperabundant quantity of juices, charged upon the body by the obſtruction of ſome evacuation, may be relieved by bleeding, evacuations, and condenſing medicines. This hectic fever, which is the effect of an inteſtine motion of the juices, that ariſe from their ſuperabundant quantity in the larger veſſels, which have not a proper degree of velocity from the contractions of the relaxed fibres, will not yield to ſuch treatment as I have propoſed for the relief of the other, but will rather be increaſed thereby. A great many perſons have made objection to what I have aſſerted to be the cauſe of a hectic fever, and alledge, that this fever is cauſed only by the plethora, which is generated in the body by the obſtructions, which ſhorten the blood's circuit. That a plethora is one of the cauſes of this fever I grant, but then we are not from thence to make it the only cauſe, nor, indeed, the chief one. The obſtructions, and ſchirrous ſwellings, which affect divers parts of the body, will evidently ſhorten the blood's circuit, and, conſequently, increaſe the quantity of this fluid in the larger veſſels; hence a plethora; but this will not of itſelf give riſe to a hectic fever, nor, indeed, to any fever, becauſe the ſolids, or containing veſſels, have loſt almoſt all their ſpringineſs, and, conſequently, cannot give their ſuperfluous charge ſuch a degree of motion as will raiſe any great degree of heat in the body; nor, in fact, ſuch a motion as will maintain its common heat; ſo that we muſt be obliged to ſearch for ſome other cauſe, as an aſſiſtant, before we can give an account of the true cauſe of this fever. This other cauſe, we may venture to aſſert, is nothing more than the inteſtine motion which this ſuper-abundant quantity of juices undergoes in the larger veſſels, for want of a due degree of direct motion, to keep its parts in a proper ſtate of fluidity, and to diſcharge its acrid particles by the common out-lets of the body. (How ſuch a degree of heat is, by this means raiſed, may be ſeen in the chapter on the cauſe of animal heat.) The heat raiſed by this inteſtine motion, gives a ſtimulus to the much relaxed fibres, and enables them to throw off this offending matter in profuſe ſweats, and the patient is thereby relieved until there is more matter to generate a new inteſtine motion. We may frequently perceive a degree of the hectic fever to accompany the ſcurvy, in thoſe conſtitutions which have been long pamper'd with high ſeaſoned foods, wine, and ſpirituous liquors; but this will not be ſeen while the veſſels have ſuch an elaſticity, as will give the juices a direct motion ſufficient to force off their acrid particles thro' the ſecretory glands.

PROPOSITION II.

Of the different effects of this hectic fever, and how it is the means of deſtroying the life of the animal.

A Hectic fever, in the firſt place, diſcovers itſelf with a liſtleſſneſs and unaptneſs to motion, which is ſoon followed with a violent heat, and diſagreeable ſenſation, which the patient perceives in the palms of his hands and feet; a glowing redneſs in the cheeks, and anxiety, eſpecially after a large meal: all theſe are very much exaſperated towards evening. As the primary diſeaſe increaſes, this fever will likewiſe increaſe, and is ſoon after attended with a violent headach, twitching pains in the ſides and limbs, which are wandering like a rheumatiſm; the belly and hypochondres are greatly diſtended, and there is a frequent belching of wind from the ſtomach; the legs ſeem very weak, feeble, and ſwell towards the evening; and after a little interval of time, his whole body becomes hot, dry, and heavy, and his ſpirits are dejected. When he goes to bed in the evening, he finds himſelf very hot, reſtleſs, and uneaſy; and if he ſhould chance to get any ſleep, it is very troubleſome to him, and attended with frightful ſtartings. In this diſtracted condition he continues until towards morning, when he falls into profuſe ſweats, by which he is revived and relieved from his preſſure. After the patient has thus ſweated, and diſcharged from the blood this offending matter, he finds himſelf very light and eaſy for ſome time, till the juices accumulate upon the body, and raiſe an inteſtine motion as before. Thus the diſeaſe continues inſenſibly to gain ground upon him, at firſt by fits, but at laſt, when it approaches towards its laſt period, the danger will be very viſibly painted. However, the generality of thoſe who are labouring under this diſeaſe, even when it is attended with ulcers of the lungs, will not be perſuaded that their caſe is dangerous, but will ſtill be bigotted to life; nay, they will talk as unconcernedly of their buſineſs, or amuſements, as if they were abſolutely in health.

The patient entertains thoſe hopes of recovery from the dullneſs of his diſeaſe, which does not give him that degree of pain which he receives from other diſeaſes; even, if his lungs are ulcerated, the moſt ſevere ſymptoms, the cough, hectic fever, and reſtleſſneſs, entirely diſappear when his body is eaſed by profuſe ſweats. As the diſeaſe more and more increaſes upon the body, eſpecially when it is of the phthiſical kind, the patient begins to be fretful, never pleaſed with thoſe who are around him, always uneaſy, and bitterly complaining at every ſlight diſappointment He is frequently attacked with a palpitation of the heart, ſlight convulſive motions, and a languidneſs diffuſes itſelf thro' all the ſeveral parts; whereupon the obſtructions and ſwellings become daily more obſtinate and burthenſome; the lungs melt down apace, and the diſeaſe, at length, limits the period of his life.

CHAP. VIII.

Of the immediate effects of a confirmed phthiſis, i. e. *when the lungs are abſolutely ulcerated.*

PROPOSITION I.

The effects of a confirmed phthiſis, will depend greatly upon the nature of the præ-diſpoſing cauſes, and the conſtitution of the body.

WHEN the lungs become abſolutely ulcerated, a conſumption may be ſaid to be in its laſt ſtage, and is generally regarded as incurable. Before the ulcer is formed in this organ, that is, when it is only affected with ſwellings, and obſtructions, if proper medicines are adminiſtred, and proper care taken, theſe little ſwellings and ulcers, with the little ulcers and obſtructions of the other viſcera, may be relieved and cured; and I am of the opinion, and have ſeen three or four inſtances to confirm me therein, that there may be relief given, even when there is a large ulcer formed, and ſometimes a cure; more eſpecially, if the patient is not paſt the meridian of life, or when the conſtitution is not much broken: but the patient is to expect no hopes of life when the ulcer has been of long ſtanding, and the conſtitution is much amaciated. Some perſons there are, who poſitively aſſert, that no ſpecies of a conſumption, even in its firſt ſtages, is capable of being cured; others again, on the other hand, inſiſt upon the poſſibility of curing all ulcers of the lungs, even after they have made conſiderable breaches in the conſtitution; but I could heartily wiſh, for the good of mankind, that both the one and the other of theſe, would inform us of their reaſons for ſo aſſerting, as it is very evident, that experience proves the contrary. It is certain, that a patient, in whom the ſymptoms of a phthiſic have appeared from the beginning of the diſeaſe, does very rarely overcome the ſame; this is generally the caſe, when he is of a hot and dry conſtitution. The firſt ſymptoms which we perceive, which denote the lungs to be ulcerated, are a dry, harſh, and ſounding cough, attended with an expectoration of viſcid ſtinking matter, in a ſmall quantity at firſt, but, as the diſeaſe gains ground, its quantity increaſes, and it becomes of a yellow, green, and ſometimes of a duſky colour. The patient, from the beginning, feels a very great preſſure upon his breaſt, (occaſioned by the lungs being ſtuffed with a viſcid inflammatory matter, before they begin to ulcerate) with a ſhortneſs of breathing, more eſpecially when the air is cold and denſe. But the moſt certain ſigns to diſcover that the lungs are ulcerated, are, the expectoration of a purulent matter, a difficult reſpiration, and an oppreſſive load or weight upon the breaſt; more eſpecially if we likewiſe add the hectic fever, a ſymptom which is always an attendant upon this malady. Some authors have treated the phthiſical conſumption as a diſtinct diſeaſe from an atrophy, whereas, if we carefully examine this matter, it will evidently ly appear, that theſe diſeaſes have the ſame præ-diſpoſing cauſes, and vary in their effects only according to the nature of the conſtitution. The lungs, in ſome conſtitutions, are much more liable to be affected than any other part of the body, becauſe they are of a very fine, ſoft, and ſpongy texture, and their fibres are entirely vaſcular. Other conſtitutions, again, will much ſooner have their lower bowels obſtructed and ulcerated, which will diſpoſe the body to an atrophy; but I very much queſtion, whether the lungs are not afflicted, even in the laſt ſtages of an atrophy. When the conſtitution is very hot and dry, it generally diſpoſes to the former of theſe; but when it is cold and moiſt, to the latter. A patient, who labours under a phthiſis, entirely loſes his appetite; nay, and even loaths the very ſmell of meats. As the ulcer increaſes, the lungs conſume, and all the other effects increaſe likewiſe. His cough increaſes, eſpecially towards night, and ſounds hollow, dry, and flat. He feels a ſharp acute pain in his ſide, which likewiſe is very grievous towards night: his expectoration becomes difficult and troubleſome from its great quantity, and is, for the moſt part, putrid, green, and exceſſively noiſome. If the patient has any ſores in the external parts of his body, or any iſſues, or other diſcharges, they generally dry up at this time, which may be looked upon as a ſure ſign of mortality. The hectic fever, is one of the chief effects of this diſeaſe; it generally increaſes towards its laſt ſtage, and always becomes more violent towards the evening. Towards the morning, after the patient has ſweat much, it decreaſes, and almoſt entirely diſappears: it is the chief occaſion of thoſe frequent fluſhings and heats, which are obſervable in the face and hands of thoſe who labour under this diſeaſe, after they have made a full meal, or drank any quantity, although ever ſo ſmall, of wine or ſpirituous liquors. The pulſe are always low, quick, and unequal; ſometimes, indeed, they increaſe towards evening, when the violence of the fever increaſes, at which time the patient becomes hot, thirſty, and oppreſſed at the breaſt; his eyes appear ſunken, and of a deadly aſpect; his ſtrength decreaſes daily, his countenance is pale, thin, and turns of a yellowiſh brown colour; his bones every where ſtart up under the ſkin, from the great decay of fleſhy ſubſtance, ghaſtly to behold, and give a dreadful aſpect to the whole emaciated fabric.

PROPOSITION II.

Of the ſigns which denote the ſpeedy diſſolution of the body.

WHEN the effects of the firſt ſtages of the diſeaſe inform us that the lungs are ulcerated, we may very ſafely pronounce it incurable, and that death will be the only friend which can deliver the poor patient from his miſeries. The time when this deliverance will be, may be judged of from the ſtrength of the conſtitution, and the violence of the ſymptoms. For ſome days before the thread of life is cut, the night ſweats begin to increaſe, the nails of the fingers bend inward, and appear as if they were dead, the legs ſwell moſt violently upon the leaſt degree of motion, the hairs drop off, and the colliquative diarrhæa will admit of no palliation; ſoon after the cough and expectoration will entirely ceaſe, and the fatal minute is generally uſhered in with a convulſion, which, if the patient is very much emaciated, carries him off the firſt fit, but if he is not, the ſecond, or third, which generally happen after one day's interval, will relieve him from his ſtate of miſery.

CHAP. IX.

Of the cauſes and effects of a Tabes Dorſalis.

PROPOSITION I.

Of the præ-diſpoſing and immediate cauſes of a Tabes Dorſalis.

THIS diſeaſe, ſtrictly ſpeaking, may be ſaid to have for its præ-diſpoſing cauſes, one of the chief præ-diſpoſing cauſes of the phthiſic and atrophy, *i. e.* a relaxation of the veſſels; but then this relaxation, in the phthiſic and atrophy, is attended with a viſcidity of the juices and obſtructions, and ſchirrous ſwellings, the conſequences thereof; whereas the relaxation, which is the chief præ-diſpoſing cauſe of a Tabes Dorſalis, is chiefly of a ſeries of glands which lead to ſome principal evacuation; that of the ſeminal glands is, for the generality, the moſt affected by this diſeaſe: however, it frequently affects other evacuations and drains, ſuch as gleets, venereal, or not venereal; the piles, fiſtula's, old running ſores, or ulcers, and, in fact, any other evacuation which may waſte the conſtitution. Theſe gleets and large evacuations, ariſing from this glandular relaxation, may be juſtly ſaid to be the immediate cauſes of the diſeaſe; and, although they may appear of very little conſequence in the beginning, yet, if they are ſuffered to continue for any time, they are capable of enervating, and, in fact, deſtroying the moſt robuſt conſtitution; by draining it of its moſt fine and balſamic juices. This diſeaſe happening to the female ſex, is generally called the whites, and ariſes alſo from the relaxation of the glands of the vagina, which ſuffer a large quantity of juices to be diſcharged off through this emunctory; although, in this ſex, it is ſomewhat more diſcoloured; which, after ſome little interval of time, robs the body of all its fine and balſamic juices, and diſpoſes it to an irrecoverable decay. This relaxation is brought on, in ſome perſons, by falls, bruiſes, ſtrains, or by the long continuance of paralitic, or other nervous diſorders, which cauſe a weakneſs of the veſſels: it is likewiſe frequently brought on by ſome vicious practices, which mankind are well acquainted with, and therefore I have no occaſion to give any farther deſcription thereof.

PROPOSITION II.

To point out the effects of this diſeaſe, in all its ſtages, and according to the nature of the conſtitution in which it happens.

THIS diſeaſe may be more properly called the nervoſe atrophy, than that ſpecies of conſumptions, which, at preſent, bears that name, both with regard to its cauſes and effects, which appear to be, for the generality, of that kind which is commonly called nervoſe. When the diſeaſe firſt attacks the patient, the belly is generally coſtive, which very ſoon produces a heat and uneaſineſs of the body, with ſome degree of fever.

ſever. If the patient is of a warm conſtitution, and has lived a very debauched courſe of life, theſe ſymptoms are much increaſed. Soon after he finds his ſpirits much dejected, and he is attacked with a ſpecies of the vapours and hypochondriac melancholy, which make the poor wretch very miſerable in his ſituation. He now begins to repent of his own folly, and diſpairs of his ever being reſtored to his former ſtate of health. Theſe appear to be the effects of a nervous diſeaſe, and are very different from the effects of an atrophy, or phthiſical conſumption; in which the poor patient continually flatters himſelf with the hopes of a recovery, even when there is not the leaſt poſſibility of the ſame. I had once a gentleman under my care, who laboured under the moſt violent ſpecies of this diſeaſe that I ever heard of. He was continually repining at his unhappy fate, and would frequently attempt to deſtroy himſelf by the halter and knife: however, with the aſſiſtance of providence, he was reſtored to his priſtine health and reaſon. When the diſeaſe becomes more fixed upon the conſtitution, and arrives to its ſecond ſtage, a violent pain, and weakneſs, ſeizes the back and loins; and a painful ſenſation, not much unlike what might be produced by the dropping of cold water on thoſe parts, ſeems to deſcend by the ſpine to the loins: after this, the patient becomes more chilly, and cannot bear the cold air. When the poor unhappy creature has, for ſome time, laboured under theſe ſufferings, a melancholy ſeizes on his ſpirits, which redoubles his former miſeries. Women are afflicted with the vapours, and a ſpecies of their hyſterical complaints; men with an hypochondriacal melancholy, which will be more or leſs violent, according as the conſtitution, more or leſs, favours the ſame; *i. e.* if the conſtitution is cold or phlegmatic, or has been enervated with other diſeaſes, theſe ſymptoms are very violent; and the contrary, if the conſtitution is ſtrong, robuſt, and warm. Both ſexes are ſubject to wandering pains of the head, legs, arms, and joints; and to a weakneſs of all the ſenſes. They have continually clouds and miſts ſwimming before their eyes, which deprive them, in a great meaſure, of the light; they have frequently a ſinging, and tingling noiſe in their ears, and, in their melancholy whimſies, will confidently aſſert, that there is ſomething breeding in the hollow cavities of the ſame. When the diſeaſe is attended with an involuntary emiſſion of the ſeed, which is generally the cauſe, the patient immediately finds his ſtrength begin to abate; and as this, for the moſt part, happens in the night ſeaſon, when the fibres are in a ſtate of relaxation, it makes him ſo weak, that he is ſcarce able to turn himſelf in bed, and frequently falls into fainting fits. When women labour under this complaint, they have always a large diſcharge of their naturalia, which cauſes faintneſs and anxiety. As the diſeaſe becomes more fixed in the body, its effects likewiſe increaſe, the gleets, or ſeminal diſcharges are increaſed; men become greatly dejected, and have frequently a ſpecies of the epilepſy; women become vapouriſh, and are generally ſubject to violent hyſteric fits. The lungs appear to be very little affected in this diſeaſe, more than the other parts of the body: the patient expectorates very little, and this not different from the expectoration that attends people during a ſtate of health. Thus the diſeaſe continues to increaſe, and the ſtrength of the body to decreaſe, untill the effects of a confirmed maraſmus appear: the patient, who had a briſk, airy, florid countenance, becomes very pale and dejected; his eyes appear of a deadly aſpect, and ſink in his head; his face looks grim, and has the very picture of death; and, in fact, his whole body looks like a moving ſkeleton, or a wandering ſpirit. Towards the laſt ſtages of the diſeaſe, the patient has night ſweats, although not ſo violent as in the other ſpecies of conſumptions, and a looſeneſs comes on, which bring the miſerable creature to the brink of the grave. The urine, that from the beginning of the diſeaſe let fall a white farinaceous ſediment, is now mixed with a thick, viſcid, mucous matter. He is frequently afflicted with a violent pain near the os pubis, and is very irregular in the diſcharge of his urine; ſometimes it is diſcharged in large quantities, and appears bloody; at other times it comes away in drops, and is attended with great pain. In the laſt ſtage of the diſeaſe, the patient's legs ſwell, and pit towards the evening, which is an evident token of his approaching death. Theſe are the viſible effects which are produced by this diſeaſe through all its different ſtages. The effects of this diſeaſe appear to be widely different from thoſe which are produced by the atrophy or phthiſis. The cough, hoarſeneſs, and palled appetite, ſymptoms inſeparable from theſe, are not to be perceived in this. The reaſon of this difference, in my opinion, is chiefly owing to the nature of the fluids; which, in the phthiſis and atrophy, are viſcid, hot, and tenaceous, and in this ſpecies they are rather the contrary.

CHAP. X.

Of the immediate cauſes of conſumptions.

PROPOSITION I.

Of the different opinions of authors with regard to the immediate cauſe of conſumptions.

IT is the opinion of a great number of the antient and modern authors, who have writ on this ſubject, that the cauſe of conſumptions is an acid, or acrid humour, abounding in the blood, which frets and irritates its minute containing veſſels; worms and animalculæ, which fret and gnaw the veſſels of the ſtomach, lungs, liver, and other parts of the viſcera; or a collection of ſome matter, which they generally call malignant. The one, or the other of theſe, they imagine to be the immediate cauſe of conſumptions, and conſequently is capable of producing the ſeveral effects which are known to be produced by this ſpecies of diſeaſes; as to diſpoſe the ſeveral parts of the body to obſtructions, inflammations, ſchirrous ſwellings, and ulcers, which, in a ſmall interval of time, will reduce the whole fabric to an incurable phthiſis. I ſhall, therefore, agreeable to my propoſition, examine the opinions of thoſe gentlemen, and endeavour to diſcover thereby which of theſe cauſes is capable of producing this ſpecies of diſeaſes, or whether either of them can be proved ſo to do. But before we can properly come to any light in this ſubject, it will be neceſſary for us to examine what they alledge to be the procatarctic cauſes of this ſpecies of diſeaſes. Theſe they acknowledge to be, firſt, a ſuppreſſion of ſome accuſtomary natural evacuation, as the menſes, lochia, old ulcers, hæmorrhoids, iſſues, and ſweating of the feet; without correcting the cauſes, from whence theſe did proceed. 2dly, Great paſſions of the mind; the chief of which are fear, anger, or ſorrow. 3dly, Too large and unſeaſonable quantities of meats or liquors, eſpecially thoſe of the hot and ſpirituous kind; which they have obſerved to be generally accompanied with ſorrow and lowneſs of ſpirits, and to give riſe to this diſeaſe. 4thly, A neglect of due exerciſe. 5thly, Night ſtudies, long watching, and alſo ſleeping immediately after eating in the day-time. 6thly, A thick and marſhy air. 7thly, Contagion. 8thly, Chalky ſtones in the lungs. 9thly, An ill conformation of the thorax. And 10thly, Other diſeaſes, amongſt which they accuſe hyſterical affections, intermitting fevers, and diſeaſes of the breaſt ill managed, as an aſthma, pleuriſy, peripneumony, or inflammation of the thorax. I ſhall here examine theſe procatarctic cauſes according to the laws which are known to govern the human body, and from thence endeavour to diſcover whether either of them can give riſe to an acidity of the blood, an acrimony of the ſame, worms or animalculæ, or to the matter which is generally called malignant; and how they are capable of producing theſe effects. Firſt, then, if any of the natural evacuations were excretions of an acid, or acrid liquor, then, by their ſuppreſſion, would an acid or acrid humour be accumulated in the body; but the menſtrual blood, the hæmorrhoids, or lochia, are not excretions of an acid, or acrid liquor, but of a laudable blood. By iſſues alſo, and ulcers, is evacuated ſalutary juices; only that they run to pus and ichor, by their own inteſtine motions, after they are ſeparated from the blood veſſels. Nor does ever the blood, or any humour of the body, contract an acidity, unleſs by ſtagnation when drawn off from the veſſels; and I have frequently attempted to diſcover any acid predominant in it even then, but in vain: others, who were more curious, and, perhaps, better acquainted with chymiſtry, have pretended that they have extracted an acid from the human blood, but I muſt own that I ſhould be very glad to ſee this performance. Indeed the blood and juices of the human body do frequently contract an acrimony, when they fall into inteſtine motions; but I ſhould likewiſe obſerve, that they never fall into inteſtine motions while the fibres have a proper degree of elaſticity, to give them ſuch a quantity of direct motion as is agreeable to the laws of the human machine: conſequently, this acrimony of the fluids muſt ariſe from the relaxation of the veſſels. What thoſe authors advance, in the ſecond and third place, as the procatarctic cauſes of this diſeaſe, ſufficiently ſhew, not an acid, or acrid, but a viſcid blood do attend; ſince fear and concern of the mind do always allay muſcular motion, and, conſequently, a decreaſed velocity, and beginning viſcidity of the fluids muſt ſoon follow. Anger, by the violent agitation which it gives the ſpirits, increaſes the muſcular contraction, expands the aerial particles of the blood, and cauſes a rarefaction of the ſame: to which if there be added ſpirituous drinks, or high ſeaſoned foods, which will always be found to increaſe ſuch rarefaction, there will be too great a quantity of fluids; and, therefore, by reaſon of their quantity, and not their acidity, or acrimony, will they break their containing veſſels, and give riſe to ulcers. What is alledged, in the forth place, as procatarctic cauſes, manifeſtly augments the quantity of good blood, commonly called a plethora: for, by our ordinary exerciſes, we waſte that which muſt be recruited again, and this is augmented with the chyloſe parts of our aliments, which will be found to be neither acid nor acrid. It is very evident, that ſtudy alſo, and ſleep after meals, do decreaſe muſcular motion, and conſequently the velocity of the circulation, whence a viſcidity, and not an acidity or acrimony, of the fluids muſt follow. Watching, and too much exerciſe, waſtes the lymphatic parts, and leaves the remaining maſs more thick and viſcid. A thick marſhy air decreaſes the contractions and elaſticity of the fibres, and conſequently a tenacity of the juices, for want of a proper degree of motion therefrom, muſt follow. And nothing is more obvious, than that the compreſſure of a narrow cheſt, which does not give the lungs room enough to protrude its contents, is apt to decreaſe the blood's motion, and conſequently increaſe its lentor and tenacity. The calculus ſubſtances, commonly called chalk ſtones, in my opinion, do never proceed from an acidity, or acrimony, of the juices, but rather from their lentor and tenacity. That contagious matter, to which the term malignant is ſo aptly given, is not an acidity, but a peculiar lentor and viſcidity of the juices: indeed, it is generally attended with ſome degree of acrimony, as this viſcid matter will always be more or leſs ſubject to inteſtine motions; but then this degree of acrimony will be very ſmall, and uncapable of corroding the containing veſſels, giving riſe to ulcers, or any of the malevolent effects of this diſeaſe. What our learned authors obſerve of this diſeaſe being cauſed by worms, is really a farce, for the moſt ingenious philoſopher, with the beſt optical inſtrument, could never perceive any worms in the expectorated, or perſpirable matter of this diſeaſe. I have made a great number of experiments with the blood and juices of the human body, and upon the moſt critical examination, could never diſcover the leaſt degree of acidity or acrimony therein, during the time that perſons laboured under this diſeaſe: even the urine itſelf, through all its ſeveral ſtadiums, is perfectly taſteleſs; and the blood and ſerum diſcover not the leaſt acidity or acrimony, nor even ſo much ſaltneſs as may be obſerved in the blood of healthful conſtitutions. In the ſcurvy likewiſe, a diſeaſe that ſeems, of all others, the moſt likely to make the blood and juices acrid and ſaline, I never could diſcover any acidity or acrimony in the juices. The blood and juices which iſſue out from the putrid gums of thoſe whom this diſeaſe has made almoſt rotten, has not any degree of acidity or acrimony ſuperior to what is obſervable in the blood and juices of thoſe whoſe gums are ſound, and whoſe bodies are in a good ſtate of health. Therefore, I know no ſtronger proof of the non-exiſtence of acidity or acrimony in the human body, except that ſmall degree of the latter which is raiſed by inteſtine motion; but, perhaps, ſome perſons may be apt to ſay, that acid and ſharp humours may exiſt in the fluids without being, in the leaſt, perceivable to the taſte: but, to comply with this objection, we will imagine that theſe do. However, I ſhould be glad to know what hurt can juices do to the animal body, whoſe acidity, or acrimony, is not to be perceived by the ſenſe of taſting? How is it poſſible that an acid or acrid humour ſhould deſtroy the fleſhy ſubſtance of the gums, and not be perceivable to the taſte? Nay, farther, we frequently obſerve the gums of perſons entirely conſumed, when they have not felt the leaſt degree of pain therein: which, if this diſſolution of ſubſtance had proceeded from acid or acrid humours, wounding and diſſolving the tender nerves and fibres of thoſe parts, the pain muſt be almoſt equal to that cauſed by a cauſtic. But, perhaps, thoſe perſons may be again ready to aſſert, that there is no other internal means by which the gums, or, indeed, any other part of the body, can be diſſolved; but this aſſertion may be as eaſily proved to be as void of foundation as the former. For the fibres which compoſe the gums, or, in fact, any part of the body, may loſe their ſpringineſs and elaſticity, and fall into a relaxation; and this relaxation will ſuffer the particles of the fluids to go into too cloſe contacts with each other, and conſequently they will become tenaceous, and not able to enter the capillary veſſels of the body, whereby thoſe veſſels will be deprived of their nouriſhment, and a decay or waſte muſt enſue. The gums, being compoſed of a minute ſeries of veſſels, will be ſubject to this decay; and this viſcid fluid will be apt, by its ſlow motion, to give riſe to ſwellings, tumours, and frequently ulcers in the ſalival glands; which are the known effects of the ſcurvy. Again, if this ſpecies of diſeaſes were to ariſe from acid or acrid juices abounding in the blood, then would the blood of perſons, ſubject thereto, give ſome appearance of its abounding therewith; then would the pains of theſe diſeaſes be equally ſharp and ſevere with thoſe which afflict the conſtitution, when it labours under the gout, rheumatiſm, or gravel, which may be demonſtrated to be the effects of ſharp fretting humours, generated by the inteſtine motion of the juices: whereas the contrary is very obvious in this ſpecies of diſeaſes I am now treating of. In a diabetes, likewiſe, which may be reckoned as a ſpecies of this diſeaſe, the urine is of a ſweetiſh taſte; which it acquires from the bilious particles with which it is impregnated, and which the veſſels, by the great relaxation of their compoſing fibres, have not power enough to alter; ſo that the chyle, during the courſe of this diſeaſe, paſſes through the lacteals, enters the maſs of blood, and is, by the protruding force of the heart, driven to the kidneys for ſecretion, before its nature and texture are much changed by the action of the relaxed veſſels. But what made me doubt the moſt of this ſpecies of diſeaſes being cauſed by an acidity or acrimony in the blood, was, the methods which have hitherto been taken for their cure, which ſeem to be very juſtly calculated for abſorbing the ſharp points of acid and acrid humours; altho' theſe methods will do very little towards the cure of conſumptions. What medicines can be better calculated for abſorbing the ſharp points of acid or acrid humours, than thoſe of the oily and balſamic kind, teſtaceous powders, aſſes milk, ptiſans of barley and pectoral plants, and the cooling ſpecies of gum tragacanth? Yet experience teaches us that theſe will do nothing more towards the cure of a conſumption, than ſoften and lubricate the veſſels, and allay the ſeverity of the cough. When a perſon conſiders carefully, and, I ſhould likewiſe add, impartially, what I have already obſerved, it will very evidently appear, that thoſe authors, who taught mankind that this ſpecies of diſeaſes owed their riſe to an acidity or acrimony of the juices, did eſtabliſh their theory upon mere conjecture, and did never carefully examine whether ſuch juices did ever exiſt, in the bodies of thoſe who laboured under this kind of diſeaſes; or, if ſuch juices did ever exiſt from what did they derive their exiſtence; which were principles very eſſential to be underſtood before they could venture to lay down any method of cure. For nothing, in the practice of medicine, can be attended with more dangerous conſequences, than to ground the cauſes of diſeaſes upon an imaginary foundation; for, in ſuch cauſes, the cure directed will be equally imaginary, and it is an hundred to one but that the miſerable patient falls a victim to indiſcretion and neglect. But to return to my ſubject; ſo far, therefore, are the juices of the human body from being either acid or acrid in conſumptions, that, for the generality, they do not contain ſuch a quantity of ſalts and acrid particles, as is requiſite to keep the ſolids in motion; and this defect of the ſaline particles of the fluids ariſes from the languid ſtate of the arteries and protruding veſſels, being incapable of giving the fluids ſuch a degree of motion as will maintain their inherent centrifugal quality, and keep their ſaline particles developed; whereby their centripetal or attractive quality will increaſe, and they will become viſcid and inactive: this is the reaſon why all the bodily motions, in a conſumptive ſtate, are depreſſed ſo much beneath the ſtandard of nature. When I firſt peruſed thoſe opinions, of the immediate cauſes of conſumptions, I found them to be very deficient in explaining the thing they propoſed, and therefore took upon me to enquire more critically into the nature of this ſpecies of diſeaſes, and make no doubt, but, that the cauſes which I have endeavoured to ſupport in the following propoſition, will be thought ſufficient to account for all the intricate phænomena that may be obſerved during their ſeveral ſtages.

PROPOSITION II.

To point out the real immediate cauſes of conſumptions.

PHyſicians of great learning, have informed the world, that the diſcovery of the immediate cauſes of diſeaſes is much above human knowledge, and that if it was poſſible for us to acquire this knowledge, it would be by no means a neceſſary acquiſition for the practical phyſician. I muſt really confeſs that I look upon this doctrine as ſomething very extraordinary; and not proper to be preached to perſons who have the leaſt knowledge of the phœnomena of nature. It is very obious that all thoſe ſymptoms which are obſerved to ariſe from a diſeaſe, and to point out to us its different natures, are the effects of its immediate cauſe; and, to me it appears a paradox, how any perſon can pretend to relieve thoſe effects, and cure the diſeaſe, except he is firſt acquainted with their cauſe, and the grounds upon which they ſubſiſt and are ſupported. My preſent propoſition, therefore, leads me to point out the immediate cauſes of all the perplexing phœnomena which are obſervable in the ſeveral ſtages of conſumptions, and to endeavour thereby to caſt ſome light upon their ſeveral indications of cure. In my foregoing propoſition, I have endeavoured to prove, both by reaſon and experience, and in the cleareſt manner, that no acid or acrid humours, worms or animalculæ, or malignant matter, can be aſſigned as the immediate cauſes of decays; therefore the violent effects which may be obſerved to ariſe from this diſeaſe, muſt owe their orgin to ſome other cauſes. According to the laws which are known to govern the ſeveral motions of the human machine, it is reaſonable to judge, that the true cauſes of all decays and conſumptions muſt ariſe from the contractile force of the fibres being depreſſed below the ballance of nature, from an increaſe of the centripetal or attractive force of the fluids following thereupon, and from obſtructions and ſchirrous ſwellings of the viſcera; which, towards the laſt ſtages of the diſeaſe, degenerate into ulcers upon the ſeveral bowels; the conſequence of an increaſe of the centripetal or attractive force of the fluids. Therefore, from what I have obſerved, the cauſes of conſumptions or decays will begin, whenever the whole body, or any part thereof, ceaſes to be nouriſhed; and this will happen whenever the particles of its fluids too ſtrongly cohere, which will be the caſe, whenever the fibres begin to loſe their ſpringineſs and elaſticity; conſequently, the beginning of decays will be, whenever the elaſticity of the fibres abate, and the containing veſſels recede from their proper ſtricture: and as the attractive force of the fluids increaſe, ſo will the attractive force of the ſolids decreaſe, and change their principle of attraction for that of repulſion, as the former does the contrary. The cauſe of this change of principle proceeds from the irregular uſe of the non-naturals, of which I ſhall treat at large hereafter. Upon this change of principle, the body loſes in a great meaſure its natural motion, the fluids thereby become viſcid and tenaceous, their heat decreaſes, and the body becomes more chilly, eſpecially when it uſes but little exerciſe: this inherent coldneſs proceeds from the weakneſs of the capillary veſſels, and the languidneſs of the ſecretions, the conſequence thereof; whereby the vital ſtream cannot ſeparate ſuch a quantity of ætherial particles, or animal ſpirits, as is neceſſary to preſerve, in due order, the ſeveral motions and actions of life. This relaxation of the fibres is, therefore, the chief ſpring from whence ariſes all the preceding phœnomena, as well as all the changes the blood ſuffers, both in colour and conſiſtence. For it will generally be obſerved, that the blood of people who enjoy a ſound ſtate of health, upon veneſection, appears of a beautiful florid colour; whereas, in thoſe perſons who labour under decays or conſumptions, it loſes that fine florid hue, and becomes more pale and viſcid, and environed with a yellowiſh film; and this phœnomenon can ariſe from nothing otherwiſe than from the blood globules being enveloped in its ſerous part, which is grown viſcid for want of a proper degree of motion: as we may eaſily perceive the arterial blood to be more florid than the venal, and ſome parts of the venal to be more florid than others, *i. e.* according to their degree of velocity. That white viſcid matter, which appears like a film upon the ſurface of the blood of thoſe who labour under the ſcurvy, and likewiſe thro' all the ſtages of this diſeaſe, ariſes only from a viſcidity of the ſerous parts of the blood; the moſt light particles of the craſſamentum ſettling laſt to its center. For, according to the laws of matter, all bodies gravitate in proportion to their different ſpecific gravities; therefore it will follow, that the yellowiſh, or fleſh-coloured film, conſiſting of thoſe particles of the blood which have the leaſt ſpecific gravity, and ſome of its ſerous particles, grown viſcid for want of a proper degree of motion, will ſubſide, and take their places laſt, according to their different degrees of denſity and ſpecific gravity; and conſequently will prove a covering to the ſurface of the craſſamentum. Thus far I have endeavoured to account for the immediate cauſes of conſumptions and decays, and the properties which the blood acquire under theſe diſeaſes. I ſhall now proceed to enquire how the ſame inſtruments of motion can produce the effects which are known to ariſe from thoſe cauſes, and which conſtitute the nature of theſe diſeaſes. The cauſe of the effects of a diſeaſe muſt be the immediate cauſe of the diſeaſe itſelf, and the ſame defect of the inſtruments of motion which gave riſe to the cauſe, will likewiſe be found to give riſe to the effects; therefore, a diſeaſe which ariſes upon the conſtitution from a weakneſs, or relaxation, of the contractile veſſels, muſt certainly firſt begin where the contraction and vibration of theſe veſſels are the leaſt, and as this contraction and vibration are chiefly maintained by the warmth and ſtimulus of the blood and ſpirits, the parts where this warmth and ſtimulus is the leaſt, will be the firſt that will loſe their contraction and elaſticity. The parts of the body, where the warmth and ſtimulus of the blood and ſpirits are in the greateſt degree, are the parts which are neareſt the heart and brain, the centers of life and motion, and the parts where theſe are in the leaſt degree, will be theſe which are fartheſt off from thoſe centers; conſequently, the parts which are fartheſt off from thoſe centers, will be the parts which will ſhew us the firſt marks of a decay. As for inſtance, the feet and ancles give the firſt indication of this diſeaſe, by their pitting, upon any impreſſion being made with the finger; eſpecially towards night. When this weakneſs and relaxation of the containing veſſels increaſe, the diſeaſe more and more gains ground, and towards the latter ſtages of it, the legs greatly ſwell, from the tenacity and ſlow motion of the juices in their minute veſſels, and their aptneſs under ſuch circumſtances to ſtagnate; which will be always in proportion to the weakneſs and relaxation of the fibres. When the diſeaſe has got ſome root in the conſtitution, according to the cauſes I have juſt now aſſigned, the tenaceous fluids go on to form obſtructions in divers parts of the body; and thoſe parts will be firſt obſtructed, that are, from the weakneſs of their fibres, rendered in-

incapable of making a proper reſiſtance to the impulſes of the fluids thrown on them by the protruding force of the circulation; as the lungs, ſpleen, liver, ſtomach, and bowels. In all conſumptive caſes, nay, I might have added, in all chronical diſeaſes, it will be perceived that the ſtomach is the firſt part that is affected, and nothing is more reaſonable than that it ſhould be ſo, ſince it is the recepticle from whence every individual veſſel and fibre of the body has its ſupply of nutritive juices. The ſtructure and mechaniſm of this organ is really very curious and wonderful; that a ſalutary ſenſation, commonly called hunger, muſt neceſſarily ariſe whenever it becomes near empty. This ſenſation is excited from the attrition that the fibres of its inner nervous coat make on each other, for want of a proper ſupply of matter to counteract their contractile force, (for it is well known, that the fibres of this organ, when the body is in health, are always in a ſtate of contraction, and their force is, in a great meaſure, counteracted by the weight of the aliments) which, by the exquiſite pain and uneaſineſs which they occaſion, greatly affect the brain and common ſenſory, whereby the mind is deſirous of ſupplies, to prevent this uneaſy ſenſation, by counteracting the ſtrong contractile force of theſe nervous fibres. This is the cauſe of hunger, natural to the conſtitution; and I will now proceed to enquire into the cauſe of its not only being frequently defective, but vitiated to a very great degree. Loathing, which is a diſagreeable ſenſation, quite oppoſite to that of hunger, is a ſymptom that generally attends all ſtages of this diſeaſe, and increaſes with it; ſo that towards its latter ſtages, the very ſmell of meat proves highly offenſive to ſome perſons, eſpecially thoſe whoſe fibres are weak and tender. This proceeds from the fibres of the coats of the ſtomach being too much relaxed, and even their languid contractile force counteracted by a large quantity of lymphatic juices, being thrown upon this organ, by the protruding force of the circulation (as the fibres of its coats are not ſtrong enough to give them a proper reſiſtance) and there grow viſcid, for want of a due degree of motion, and form that offenſive matter commonly called phlegm; which, often in this diſeaſe, lie impacted in the folds of the ſtomach, and is the only cauſe of that nauſea, want of appetite, and indigeſtion, which are its conſtant attendants. What we commonly call phlegm, is nothing more than the lymphatic juices of the body grown viſcid and tenaceous for want of having a proper degree of agitation. When things come to this ſtate, the ſtomach and various parts of the body become ſtuffed and obſtructed with this tenaceous matter, and in a ſmall ſpace of time are infected with ſchirrous ſwellings; and if theſe ſwellings happen in a ſeries of veſſels where there is a quantity of fluids ſufficient to generate inteſtine motions, the part impoſtumate, and death is frequently the conſequence thereof. The ſpleen, liver, and other bowels, from the attraction of the particles of the fluids being increaſed, and their ſpongy fibres being relaxed, begin to be obſtructed and diſtended, and, if the conſtitution is ſanguine, or bilious, they inflame, impoſtumate, and turn to ulcers;

while the ſame obſtructions, in parts where the veſſels are more minute, the quantity of the fluids leſs, and their motion more ſlow, are not attended with an inflammation, but, for the generality, terminate in ſchirrous ſwellings. When thoſe great bowels, and ſeveral of the extreme parts of the body are crouded with obſtructions and ſchirrous ſwellings, they ſhorten, in a great meaſure, the blood's circuit, whereupon its quantity is increaſed, in thoſe parts of the body which yet remain unobſtructed, and a plethora will be generated, which will excite thoſe hectic heats that attend this diſeaſe, either 'till the obſtructions are forced open, or 'till death cloſes the ſcene. Whenever the blood's circuit is leſſened by the aforeſaid cauſes, the plethora that will attend the ſame will over-ballance the motions of the heart and arteries, and, for ſome ſmall interval of time, will decreaſe their motions and actions upon their contained fluids; a chillyneſs will immediately enſue, and an inteſtine motion of the juices follows after: new heat is hereby raiſed, and the heart and arteries are again ſtimulated to action and motion, which will be greater or leſs according to the ſuper-abundant quantity of blood which falls into inteſtine motions. The motions of the heart and arteries being again increaſed, the velocity, attenuation, and heat of the blood muſt likewiſe be increaſed; which, added to the heat and attenuation generated by the inteſtine motions, will excite a fever of the hectic kind. And as the fibres of the body are ſo very weak as not to give a proper reſiſtance to the fluids of the larger veſſels, whoſe motion is now increaſed, all the ſerous part of the blood, which will enter the capillary veſſels, is forced off through the pores of the ſkin, and gives riſe to that violent ſymptom commonly called hectic ſweats. This fever will not be continual, but will increaſe and decreaſe according as the blood is more or leſs charged with a glut of tenaceous and acrid juices; and this will depend entirely upon the obſtructions being more or leſs, and according as a greater or leſſer quantity of new chyle, after every repaſt, is added to the blood.

From hence, therefore, we may ſee the reaſon why the ſymptoms of this fever are increaſed after a full meal; becauſe then the quantity of blood is increaſed by the new chyle; and by the quantity of this fluid being increaſed, its inteſtine motion will likewiſe be increaſed (as I have heretofore hinted) and this, by the heat and ſtimulus which it raiſes, will oblige the heart to redouble its impulſe, in order to attenuate, digeſt, and diſſolve this new matter, and fit it for the nouriſhment of the parts of the body yet pervious. The blood and juices being in this viſcid tenaceous ſtate, from a relaxation of their containing veſſels, that part of them which is conveyed to the brain, and appointed for the ſecretion of the nervous fluid, will afford but a ſmall quantity of this fluid, under theſe circumſtances, in proportion to what is neceſſary to give conſtant ſupplies to the animal powers in a ſtate of health; and hence proceeds that melancholy, and fearful timerouſneſs, which generally accompany this diſeaſe. Thus the ſymptoms of this diſeaſe, ariſing from the cauſes I have here aſſigned, continue to increaſe, 'till the fibres of the windpipe and bronchial veſſels begin to relax, and conſequently their glands will ſecrete more of that lymphatic juice, which nature has ordained for their lubrication, than they naturally ſhould ſecrete; hence proceeds an accumulation of this lymphatic juice upon the minute veſſels of theſe organs, which, by irritating their fine nerves, excites that convulſive motion that we generally call a cough. Having proceeded thus far to account for the ſeveral effects of this diſeaſe when it is univerſal, or of the whole body; I ſhall now proceed to conſider it when it attacks the lungs, or when an affected lungs is the firſt of its viſible effects. It is very evident that there muſt be a diſpoſition to, before there can be a generation of a real diſeaſe: this rule is univerſal in all diſeaſes. The fibres of the lungs muſt, therefore, be weakened and relaxed, before this organ can be affected; upon which its minute veſſels will not be capable of protruding the fluids which circulate through them with a proper velocity to keep their particles minutely attenuated;

hence, therefore, theſe fluids will begin to grow tenaceous, and a quantity of phlegm will be generated; for the attraction of fluids of ſimilar particles will be always in proportion to the degree of motion that the fluids obtain. The quantity of this viſcid tenaceous matter increaſing, and its particles very ſtrongly cohering, it will entangle itſelf in the fine veſſels of this organ, and generate obſtructions; and as this viſcera is always kept in a great degree of heat (from the whole maſs of fluids paſſing and repaſſing through its ſubſtance) and conſtant motion, this viſcid tenaceous matter, which obſtructs its fine veſſels, will fall into inteſtine motions, (as will all animal fluids, not having a due degree of velocity, and being kept in a place, the heat of which being ſuperior to that of their own) and irritate its containing veſſels; whence proceeds a great degree of heat, and an inflammation, which, if not timely remedied, will degenerate into tubercles, ulcers, or vomicas. Sometimes this viſcid matter obſtructs the moſt fine and tender veſſels of the lungs, which, as it gradually increaſes, will give riſe to ſchirrous tumours, that ſwell and diſtend the lobes of this organ, whereby they over-fill the cavity of the cheſt, and are unable to dilate their fine veſſels for the reception of the air in reſpiration. Thoſe little tumours which are diſperſed here and there between the fine membranes of this organ, will frequently ſeparate, and degenerate into little abſceſſes or ulcers. When this diſeaſe has continued for ſometime, *i. e.* when theſe little ulcers maturate, or when an ulcer is confirmed in the lungs, the patient begins to expectorate a ſtinking purulent matter; he has a great cough, pain in the breaſt, and the intervals of eaſe begin more and more to leſſen. Towards the evening, the hectic ſymptoms increaſe greatly, and towards the morning, after ſweating, they abate. This abatement of the ſymptoms ariſes from the plethora being decreaſed by the great quantity of juices that paſſes off through the pores of the ſkin. As ſoon as this diſcharge is compleated, the cutaneous glands, with the ſmall degree of elaſticity they obtain in ſuch circumſtances, reſtore, and the poor patient finds himſelf thereby cheared and revived, and frequently buoys himſelf up with the hopes of a recovery, which, according to the orders of nature, could not poſſibly be expected. The plethora is again brought on by the new chyle, and the hectic fever and ſweatings, its effects, again return, and continue to obſerve ſuch periods 'till death lets fall the curtain and cloſes the ſcene. Thus does the miſerable patient continue to waſte daily, 'till at length he is ſubject to great anxiety and anguiſh, to frequent gripings, and fluxes of the belly, and to acute pains in his breaſt and bowels; then his large diſcharges by the ſkin, by expectoration, and by urine, are entirely ſtopped, and the matter is diſcharged by ſtool. When he draws near to the fatal period, his ſpirits flag, his tongue trembles and faulters, his joints and hands ſhake as if he was paralitic, his feet and legs are ſcarce able to ſupport his body, and, in fact, death is the only friend he has to releaſe him from his miſery.

PROPOSITION III.

Of the immediate cauſes of the ſymptoms of conſumptions, from the large diſcharges being increaſed, or decreaſed.

IN my preceding propoſition, I have endeavoured to account for the real immediate cauſes of conſumptions, and the ſeveral effects which ariſe therefrom; I ſhall now proceed to account for the immediate cauſe of the ſymptoms, as they have been increaſed or decreaſed, by the large evacuations being intended or remitted. A conſumption is to be regarded as more or leſs acute, according as the progreſs it makes in the body is quicker or ſlower, and this quickneſs or ſlowneſs of its progreſs, will, in a great meaſure, depend upon the large evacuations being more or leſs violently diſcharged, and the ſtrength of the conſtitution. Now, as I have already hinted, the immediate cauſe of a conſumption does riſe from the fibres of the containing veſſels being relaxed and depreſſed;

from the blood and juices thereupon becoming more viſcid and glutinous; from obſtructions, ſchirrous tumours, ſwellings, and ulcers, in various parts of the body, the effects of this viſcidity of the juices; from the ſeveral parts of the body being deprived of nouriſhment, by the preſſure of theſe tumours, ſwellings, obſtructions, *&c.* from a plethora, as the conſequence of a larger glut of juices accumulated upon the large veſſels; and from a hectic fever, high ſweats, *&c.* the effects of this plethora: ſo the immediate cauſe of the ſymptoms frequently ariſes from the large evacuations being irregularly diſcharged; whoſe irregularity, we frequently obſerve, will haſten on the conſumption. That a conſumptive decay is retarded; or haſtened on, according as the large evacuations are increaſed or decreaſed, will very evidently appear, from the violent effects which will immediately follow a very large diſcharge; nay, it appears very obvious from reaſon likewiſe; for whenever there is a larger quantity of matter diſcharged from the body, than there is taken in for its ſupplies, a conſumption, or decay, muſt ſoon follow. Seeing, then, that the irregularity of the diſcharges is the principal cauſe of the increaſe of the ſymptoms, and, conſequently, will be the chief means of haſtening on the conſumption, I ſhall now proceed to enquire how this irregularity can effect the body labouring under conſumptive decays. It is a well know axiom, in the medicinal art, that the decreaſe of one evacuation muſt be immediately ſucceeded by the increaſe of another, or otherwiſe a diſeaſe, from repletion, muſt be the conſequence; but, in my opinion, it is impoſſible to turn the matter of one evacuation upon another, without cauſing more or leſs of a diſeaſe in the body, eſpecially when the conſtitution is weak or relaxed, which appears to be the cauſe in the diſeaſe we are now treating of: for, upon fully conſidering the nature and mechaniſm of the human body, and the order it takes to promote every natural evacuation, it appears abſolutely impoſſible, in the general, for nature to invert the order of any of the evacuations, ſo as to ſupply by one, the defects of another, without endangering, at the ſame time, the minute ſprings of the conſtitution. Upon a ſuperficial enquiry it may appear, that the increaſing of one evacuation upon the decreaſe of another, will be the beſt means of preſerving the ballance between the contractile ſolids, and the reſiſting fluids; this granted. But when we conſider the quality of the matter retained, upon any of the evacuations being ſuppreſſed, and how incapable it is to repaſs through the animal body, without greatly diſturbing its ſeveral organs, it will appear very obvious, that our aſſertions on that head are not without a ſufficient foundation. For what ſympathy, or agreement, can we perceive between the diſcharges made, either by the inteſtines, kidneys, or cutaneous glands? How can the matter of one of theſe diſcharges be ſuppreſſed, without ſtraining, irritating, and, perhaps, rupturing the minute veſſels on which it is accumulated, and through which it muſt repaſs, to be diſcharged by any of the other out-lets? Or farther, what affinity has either of theſe diſcharges with the menſtrual flux or the piles? We never ſee the firſt of thoſe evacuations ſuppreſſed, without entirely altering the viſage, and giving great uneaſineſs to that ſex, notwithſtanding we uſe our utmoſt endeavours to ſupply that diſcharge by the increaſe of ſome, or all of the other evacuations; or if any perſon has been ſubject to the periodical bleeding of the piles, an obſtruction of that diſcharge would be very prejudicial to his body, and very frequently give riſe to dangerous diſeaſes, notwithſtanding as large, or, perhaps, a larger quantity of juices may be carried off by the increaſe of one of the other evacuations. Therefore, from what I have already obſerved, it will evidently appear, that the body can never be in a perfect ſtate of health, except all the evacuations are diſcharged regularly; as for inſtance, when there is a proper quantity diſcharged by ſtool, the urinary paſſages have ſuch a quantity for their diſcharge, as they can excrete without any pain or difficulty, and when theſe excretory ducts perform their reſpective offices without any uneaſineſs to the body, the perſpiratory glands will not be loaded with a ſuper-abundant quantity of juices, and perſpiration will ariſe free and uninterrupted. Seeing, therefore, that a regularity of all the evacuations muſt be the ſureſt indication of health; let us, on the other hand, examine how their irregular diſcharge does give riſe to diſeaſes, and particularly to the increaſe of the ſymptoms of this diſeaſe. An enquiry of this kind, will lead me to examine, in the firſt place, the great out-lets of nature, which, according as they are increaſed or decreaſed, will be found to haſten on, or protract diſeaſes. When the body is in a perfect ſtate of health, there is ſeparated, by the inteſtinal canal, the groſs and impure parts of our chyle, ſo that this fluid may be rendered capable of entering the ducts ordained for its reception, pure and untainted, and that the blood thereby may be properly nouriſhed. Now if the glands of this tube be too lax and weak, then will they ſuffer the chyle likewiſe to paſs off by ſtool, and the body will not be properly nouriſhed; hence ariſe waſtes and decays, and a diminution of the diſcharges by urine and the capillary veſſels. If the glands of the inteſtines are too firmly braced, they will prevent even the groſs and impure parts of the chyle from paſſing off by this evacuation, and, by their violent contraction, will force them into the blood, whereby this fluid will be impregnated with groſs and impure particles, which will give riſe to obſtructions, and other violent diſeaſes. The glands of the kidneys and ſkin will be ſtuffed with this groſs matter; in the former will be generated the ſtone and gravel, and in the latter, obſtructions, ſwellings, and probably the ſcurvy. In conſumptive caſes, where the glands of the inteſtines are very weak and lax, and unable to make a proper reſiſtance to the juices forced thereon by the impulſes of the circulation; theſe glands not only let paſs the fine chylous parts of our aliments, which ſhould be conveyed to the ſeveral parts of the body for their nouriſhment, but they ſerve alſo for an out-let to the blood, by letting run off thoſe fine parts of it that are conveyed thereto for diluting and aſſiſting the chyle; conſequently, the body can never long ſubſiſt when thus deprived and robbed of its nouriſhment. Theſe glands ſerve likewiſe for an out-let to the blood; when the veſſels are ſurcharged with this fluid in high fevers, or other inflammatory diſeaſes, which ariſe from repletion, eſpecially if bleeding, or other large evacutions were not adminiſtered in the beginning. Again, the diſcharge by the kidneys, being increaſed or decreaſed, is capable of producing very bad effects in the body. This diſcharge is, moſt certainly, made from the blood, and the kidneys are the natural emunctory by which this fluid diſcharges its excrements, and acrid offending parts. Therefore, whenever the glands of the kidneys are relaxed, their orifices will be widened, and they will be incapable of retaining the fluids of which the urine is ſecreted, or, at leaſt, of making ſuch a reſiſtance to their impulſe as will prevent a preternatural ſecretion; conſequently the blood will be robbed likewiſe of its fine lymphatic parts, and the diſcharge by urine will be much larger than the body can ſpare; and a conſumption muſt be the conſequence thereof: but if this happens during the ſtate of a conſumption, it always quickens its progreſs, and, except timely remedied, muſt always end in death. But when the renal glands are too firmly braced, obſtructed, or compreſſed, ſo that the urinary diſcharge is, in the leaſt degree, retarded, the blood will immediately be filled with acrid corroding particles, which will wound and rupture its minute containing veſſels, whereby the moſt violent diſeaſes will be generated, and at laſt, the very perſpirable matter will ſmell of urine. In conſumptive caſes, when the renal glands are relaxed more in proportion than the other parts of the body, a diabetes will be the immediate conſequence thereof, which, in theſe caſes, for the moſt part, ends in death. The ſame laws and powers that occaſion the foregoing diſcharges to be irregularly carried on, will likewiſe occaſion an irregularity in the diſcharge made by the cutaneous emunctory, or perſpirable matter. This is a diſcharge made from the blood in the capillary veſſels, and is, according to the learned *Sanctorius*, more in quantity, when the body is in health, than all the other diſcharges united. If, therefore, the cutaneous glands are too firmly braced or obſtructed, ſo that this matter is in any degree retained, it immediately gives riſe to diſeaſes, which will be more or leſs violent, according to the nature of the conſtitution, and the quantity of the retained matter. By increaſing the diſcharges made by ſtool and urine, I confeſs the effects, cauſed by its retention, may be much alleviated, but, I am certain, they cannot, by this means, be entirely removed. When the cutaneous glands are too much relaxed and weakened, they will not, as being the fartheſt from the center of motion, be able to retain the juices forced upon them, for ſecretion, by the impulſes of the circulation, but will let them run off in clammy ſweats; the quantity of the urine, and, in fact, of all the other evacuations will be by this means decreaſed, and the blood become more viſcid and tenaceous. This is generally the caſe in conſumptions, and theſe parts are the firſt that decay: this likewiſe is the reaſon why a great number of perſons, who are not conſumptive, are troubled with nocturnal ſweats, which are always the effects of a great weakneſs, and give the firſt notice of ſome approaching diſeaſe. But farther, theſe large evacuations which diſcharge the excrements of the three digeſtions, are not the only diſcharges that may be irregularly made from the body, but there are others which, when irregularly diſcharged, may be attended with as great, or greater prejudice to the body than thoſe I have already mentioned. The firſt of theſe is the ſemen, a ſubſtance compoſed of the moſt ſpirituous parts of the blood, inveloped in a ſmall quantity of a jelly-like matter. When this *ſemen vitale* is too frequently diſcharged, which is frequently the cauſe of thoſe who run about after lewd women, and the ſeminal glands are weakened or relaxed, ſo that they cannot retain their natural juices, but let them run off involuntarily,; it generally reduces the patient to a conſumption, and, in fact, proves the bane of the moſt robuſt conſtitution. This is generally the cauſe of the Tabes Dorſales, of which I have already mentioned. It frequently happens, that the female ſex are ſubject to an irregular diſcharge of the menſtrual flux, and the fatal conſequences thereof, are too well known to be inſerted here: however, I ſhall point out the nature of this diſcharge, and the means whereby an irregularity thereof is occaſioned. The menſtrual flux is a periodical evacuation made by the veſſels of the uterus, not by a rupture of thoſe veſſels, as the common opinion generally is, but by ducts deſtined by nature for this office: therefore, whenever there is a lentor or viſcidity of blood, occaſioned by any means, that decreaſes the action of the arteries, this fluid becomes incapable of forcing the ſphincters of thoſe ducts; upon which the blood obſtructs, coagulates, and dams up the paſſages; and by this means this evacuation becomes obſtructed, and a chain of ill conſequences will ſoon follow. But when the blood is hot and thin, and theſe veſſels weak and lax, it generally forces the ſphincters of thoſe ducts, not only at the uſual time of its diſcharge, and, by its ſtrong impulſes, diſcharges a much greater quantity thereby, but at other times, *i. e.* upon any violent hurry of mind, or exerciſe of body, and is the cauſe of innumerable diſeaſes. From what has been ſaid, it will evidently appear, how much the large diſcharges, being increaſed or decreaſed, may haſten or retard the progreſs of a conſumption, and how that moſt of its ſymptoms or effects are intended or remitted thereby.

CHAP. XI.

Of the effects of the non-naturals upon a human body, and the manner how they occaſion conſumptions.

PROPOSITION I.

An irregularity of the non-naturals is the moſt remote cauſe, or origin, of all diſeaſes.

IN my preceding chapters, I have treated of the immediate and proximate cauſes of conſumptions, with their ſeveral ſtages, connections, and dependencies one upon another; I ſhall now proceed, according to the di-

direction of my propoſition, to enquire into their moſt remote cauſes, or thoſe cauſes that firſt make the ſolids to relax, and the vital ſtream to flow irregularly, and without which, neither of the preceding cauſes can be put in action, nor any decay, nor, in fact, any other diſeaſe, diſturb the animal body. As the irregularity of the non-naturals, therefore, gives riſe to the firſt diſorderly motions of our bodies, and is the primal cauſe from whence all thoſe ill affections and diſorders that can, by any means, affect or hurt the conſtitution, do ariſe, ſo will it be highly neceſſary, according to our preſent plan, to examine by what means this irregularity is capable of diſordering the body, and obliging the fibres which compoſe its veſſels, to fall into a relaxation, and thereby give riſe to a conſumption. While the fibres of the body continue to be properly braced, and the fluids to receive a due degree of velocity, *i. e.* while the non-naturals continue to impreſs their benign influence upon the body, all its leſſer motions, and counter-motions will obey their direction, and the animal will remain in a ſtate of health;

but when the non-naturals are, at any time, irregularly impreſſed, and the fibres thereby too firmly braced, or relaxed, then will the regular impulſe of the heart, and its aſſiſtants, the arteries, be perverted; which, at the ſame time, will pervert the natural diſcharges, the motion of the blood, and, thereby, the action of the whole body: but, ſince theſe changes can be made only by the irregularity of the non-naturals, and as all diſorders owe their primal cauſe to their irregularity, I ſhall endeavour, in my following propoſitions, to define each of theſe ſeparately, and the means whereby they are capable of affecting the ſeveral parts of the human body.

PROPOSITION II.

Of the air, its various effects upon an animal body, and the means by which it is capable of relaxing the fibres, and giving riſe to a decay, or conſumption.

AS the air is, ſtrictly ſpeaking, the great ſpring which does raiſe or depreſs the motions of the human body, we cannot be too exact in giving a juſt deſcription of its properties, and how theſe can influence, and, in fact, direct its motions. Air has an elaſtic ſpring, and the ſtrength of this ſpring is capable of being increaſed, or decreaſed, according as this fluid is more impregnated with vapours, or bodies whoſe ſpecific gravity and ſpringineſs are leſs than thoſe of the air. The light of the ſun has great influence upon the air; it increaſes the enlivening power of this medium, and, in fact, impregnates it with the principle of animal and vegetable life. The air influences the human body three different ways; firſt, by its preſſure upon the ſuperfices thereof, and by its acting as a counterpoiſe to the impulſes of the heart and arteries: by this means it keeps the fibres properly braced, ſo that they may be capable of reſiſting the protruding force of the heart and maintain the other ſprings of life. If, therefore, the ſpring of the air is weakened, by its being replete with vapours, which is generally the cauſe in the autumn ſeaſon, and in thoſe countries which are marſhy, or ſwampy, the fibres will be relaxed, the motions of the body irregularly carried on, and agues, ſcurvys, or other chronical diſeaſes, will ſoon ſucceed; which frequently end in decays and conſumptions. But when, on the other hand, the ſpringineſs and elaſticity of the air are increaſed, by its being replete with nitrous particles, the effects of a cold northerly wind, the preſſure upon the human body will be much increaſed, and its fibres too firmly braced; by which means perſpiration is, in a great meaſure, obſtructed, and coughs, colds, fevers, and other inflammatory diſeaſes, will ſucceed: the fluids now meet with a great reſiſtance in the extreme parts of the body, from the too firmly braced veſſels, whereby the circulation in thoſe parts is, in ſome meaſure, ſuppreſſed, and a chillineſs will follow; but, when any violent exerciſe is uſed, or the fluids rarefied by any other means, except the extreme parts of the body are relaxed by art, a violent inflammatory diſeaſe muſt immediately ſucceed. 2dly, The air influences the body in reſpiration, by the force it impreſſes on the lungs, and by its cooling and condenſing particles paſſing through the minute veſſels of that organ, and every where adjoining to the blood veſſels, by which the blood receives a due degree of velocity thro' this minute ſeries of veſſels; and, during its paſſage, is both cooled and attenuated. It is the opinion of a great many naturaliſts, as well as phyſicians, that the blood, during its paſſage through the lungs, is impregnated with an elaſtic æther, very beneficial for the motions and actions of the human body; it muſt be confeſſed, that this opinion, as yet, is but a mere conjecture, but I could wiſh that ſome able phyſician, or naturaliſt, would endeavour to caſt ſome new light upon this, at preſent, dark hypotheſis, for it appears to me to be very agreeable, both to reaſon and experience. Whenever the air is impregnated with vapours, the volatile effluvia of putrid bodies, or, in fact, the effluvia of living animals, which labour under any diſeaſe, our bodies are liable to be diſeaſed, more or leſs, according to the nature and quality of the offending effluvia, notwithſtanding they were before in a perfect ſtate of health. Again, an air that has paſſed through fire, will not ſerve for the purpoſes of animal life, notwithſtanding its preſſure upon the lungs may be made as great as if it had never gone thro' this trial; nay, we find the air which is ſtrongly impregnated with the ſun's direct rays, in the hot ſeaſons and climates, very diſagreeable for us to breathe in, although the air, which is moderately impregnated with theſe enlivening rays, appears to have in it a vital principle, which is the ſoul of the vegetable, and, in fact, of ſome part of the animal creation; the blooming ſplendor of the ſpring evidently demonſtrates the truth of this aſſertion. In this ſeaſon, all nature is as it were re-animated; the ſleepy inſects creep forth from their cold habitations, and, by this genial warmth, are called up to enliven nature, and produce each his reſpective ſpecies. All the juices of the human body, which have been condenſed by the cold of the preceding winter, are now diſſolved and renewed, and, indeed, the whole body is renewed. This is the ſeaſon which is moſt proper to cure decays and conſumptions, ſince the increaſing warmth of the atmoſphere helps to diſſolve the viſcid and ſluggiſh juices, to give a gentle ſtimulus to the fibres, and thereby reſtore them to action, and the conſtitution to its priſtine ſtrength and vigour. About the time when the ſpring begins, *i. e.* about the latter part of the month of *February*, and the beginning of *March*, we generally perceive the atmoſphere to be ſtrongly impregnated with vapours, of the moiſt and ſulphurous kind, which are exhaled from the earth. Theſe, when drawn in with our breath, prove very offenſive to us, and are generally productive of epidemic diſeaſes, and beſides that, they greatly relax the air's ſpringineſs and elaſticity, whereupon many old and infirm people are ſubject to coughs, colds, and defluxions of rheum, upon their eyes, noſe, and pallate ; but when the ſpring advances, and the air becomes more warm, the blood and juices renew their motions, and all thoſe ill effects vaniſh. As the ſummer approaches, all the fluids of the body are rarefied, by the warmth of the atmoſphere, and the fibres are ſtretched out to their utmoſt limits. Several changes are brought about in the human body about this time. Perſons who are of a warm conſtruction, find a great uneaſineſs from a too great rarefaction of their juices, and ſtand in need of bleeding, or ſome other evacuation; women generally perceive their monthly purgations to break out now for the firſt time, *i. e.* about the latter part of *May*, or the beginning of *June*; this being the ſeaſon that moſt favours this evacuation, and, in fact, that produces the greateſt alterations and changes in the conſtitution. But, farther, the air, in the autumn, or about the fall of the leaf, will very much diſpoſe the body to conſumptions. This is a ſeaſon when the atmoſphere is generally crouded with moiſt, foggy, and ſulphurous vapours, and miſts, which greatly weaken the ſpring of the air, which render that fluid incapable of properly agitating and attenuating the blood in the lungs, and which diſpoſe the fibres of the veſſels to relax, and the fluids to grow viſcid and tenaceous. Hence ariſes the cauſe of the agues which are ſo ſtubborn, and frequently fatal, in this ſeaſon; and hence ariſes the procatarctic cauſes of waſtes and conſumptions. Our bodies are influenced by the temperatures of the air, not only at the different ſeaſons of the year, that may diſpoſe the body to decays, but alſo by the temperatures thereof at different times of the day and night. For the ſupreme author of our nature, has divided our time into two parts, the one for us to purſue our exerciſe, and for our fibres to aſſiſt the attenuation of their aliments, and the other for us to reſt, and for the ſolid parts to be nouriſhed; beſides, the great Creator of the univerſe has made the ſpring of the air anſwerable thereto: for the ſpringineſs and elaſticity of this fluid are greatly weakened and relaxed in the night-time, which ſeem, by nature, to be calculated for the time of our reſt, and the time in which our fibres may receive their nouriſhment. If, therefore, we counteract this laudable deſign of nature, and change this time, calculated by her for our refreſhment, relaxation, and nutrition, into the time of exerciſe and diverſion, we not only diſconcert the texture of our ſolids, and unhinge the conſtitution, but we draw in with our breath, part of thoſe noiſome vapours, and fogs, which fill the atmoſphere in this part of the natural day, and which the rays of the morning ſun diſperſe: theſe alone are ſufficient to relax and wear out the conſtitution, and ſubject it to decays and conſumptions; but if we add to them, as we too frequently do, a luxurious way of living, we increaſe theſe yet more. But, beſides theſe alterations of the air which ariſe from the changeable qualities of the atmoſphere, there is yet another which we ourſelves make by our too much niceneſs and imprudence, and which is frequently attended with a numerous train of ills. The means we take to make this change, is by weakening the ſpring of the little circle of air which fills our rooms, and this we perform by waſhing theſe rooms, and immediately after laying in a fire to dry them; ſo that by this imprudent ſtep, we relax the ſpring of the air to a conſiderable degree, and fill the atmoſphere of theſe rooms with moiſture; which difference of the air, within the rooms, from what it is abroad at ſuch times, muſt be frequently at-

attended with great danger, eſpecially to weak and lax conſtitutions. Perhaps ſome perſons may object to what I have ſaid, and alledge that large fires are always kept in rooms newly waſhed, to dry up the moiſture of the boards; but, in anſwer to this, I muſt obſerve, that fires will not do any ſervice in theſe caſes, but rather the contrary; for fires, although they dry the boards, will fill the room with their evaporated moiſture, and this moiſture it is that weakens and relaxes the ſpringineſs of the air, included within the atmoſphere of the room, and takes off from the preſſure that counteracts the force of the circulating fluids, and thereby gives riſe to that relaxation of the fibres, and lentor and viſcidity of the juices, which I regard as the immediate cauſe of thoſe colds, pains, and other indiſpoſitions, that many perſons complain of upon lying in a damp room, or where the atmoſphere thereof is full of moiſt vapours. I might likewiſe make the ſame obſervation on perſons who go too early into houſes newly built, notwithſtanding, in their opinion, they are well aired with fires: for the moiſture that ariſes from the new walls, being rarefied and evaporated by the heat of the fires, will fill the atmoſphere of the rooms with moiſt and ſulphurous vapours, which will be more prejudicial than if there had never been any fires. I have known ſeveral perſons taken with violent diſeaſes, ſoon after they have gone into a new-built houſe which was not properly aired, and ſome have loſt their lives thereby. 3dly, The air influences the body, by its being mixed with, and enveloped in its aliments; and thereby, by its being rarefied by the warmth of the body, proves their chief ſolvent. If, therefore, the air with which our aliments are replete, has loſt its elaſtic ſpring, its diſſolving quality will be greatly weakened, and digeſtion will not be duly performed, whereby ſeveral diſeaſes will be generated in the body, by its being ſtuffed with crudities and indigeſted matter. But, on the other hand, when the ſpringineſs and elaſticity of the air are very great, the aliments, by this diſſolving quality, will be more ſpeedily and minutely divided, and the body will be much more lively ly and chearful. If the air that we receive into our bodies with the aliments, is impregnated with a putrid, or any other diſagreeable effluvia, it always generates, in us, diſeaſes of the ſame nature, as were thoſe from whence the effluvia aroſe, if it aroſe from animal bodies, but if not, the diſeaſes will be of the ſame nature of the effluvia. Thus far I have thought proper to conſider of the nature and properties of the air, and to ſhew in what ſeaſons, and by what means, it is liable to affect our conſtitutions, and likewiſe how we may receive the greateſt injury from its impreſſions; I ſhall now proceed to conſider of the reſt of the non-naturals, and the means whereby they are capable of producing any changes in the human body, that may be productive of diſeaſes, and particularly of the diſeaſe that I am now treating of.

PROPOSITION III.

Of the aliments, and the effects which the various kinds thereof are capable of producing in an animal body, and how they produce a relaxation of the veſſels, a viſcidity of the juices and decays, and conſumptions, the conſequences thereof.

THE aliments, then, are either ſolid or fluid, and, conſequently, are capable of being either eat or drank. In the earlieſt ages of the world, the ſubſtances that mankind uſed for theſe offices, were only water, and the natural fruits of the earth. But when God diſperſed our forefathers abroad, on the face of the earth, he allowed them the fleſh of animals, after they had been perfectly drained of their blood, which was eſteemed as the life, and therefore forbad to be uſed. Water was the only liquor that we find, both by the conſent of ſacred and prophane hiſtory, was drank before the days of *Noah*, who was the firſt that introduced the uſe of wine. The invention of beer and ale was aſcribed to *Oſiris*,

Oſiris, who lived many ages after *Noah*. This drink, ſtrictly ſpeaking, is nothing more than water impregnated with the juice of the barley; nay, I might have added, that all the drink we make uſe of, in our preſent age, is nothing more than water, made by art, rather a drink more agreeable to our pallates, than a better menſtruum to allay our thirſt, and diſſolve the more tenaceous and ſolid parts of our aliments: neither can it be ſaid that there is any drink however artfully prepared, which is ſo agreeable to all parts of an animal body, the pallate, and a vitiated ſtomach, excepted, as pure fountain water. The ſubſtances, therefore, of the fluid kind, which are appropriated to our uſe by nature, are water, milk of all kinds, the infuſions, decoctions, and juices of vegetables; ſuch as beer, cyder, mead, wine, *&c.* but even thoſe are to be uſed in proper quantities, when we would uſe them according to the dictates of nature, and not in the manner that they are uſed at preſent, which ſeems rather to be calculated to deſtroy life, than to preſerve it; more eſpecially as we have joined to them the uſe of ſpirits, which are certain, although ſlow poiſons, and are the means of ſending ſome thouſands of this city, yearly, out of the world, by conſumptions, and nervous diſorders. In the primitive ages of the world, the ſupreme Being forbad our forefathers the uſe of any kind of aliments except milk, water, and the fruits of the earth, and it is very apparent the conſequence thereof, was, that they lived five, ſix, or nine hundred years, and were made much more ſtrong and robuſt than are the preſent generation: but, after the days of *Noah*, when our race were indulged with eating of fleſh of all kinds, and when they invented the method of preparing wines and ſtrong liquors, it does evidently appear that their lives were much ſhortened, their natural ſtrength decreaſed, and they became much more ſubject to bodily diſeaſes. The lives of the human ſpecies continued gradually to decreaſe, and their ſtrength to abate, 'till within theſe ſix or ſeven hundred years laſt paſt, that luxury of all kinds began to increaſe; when men, in the room of endeavouring to preſerve and nouriſh their bodies, uſed their utmoſt endeavours to weaken and deſtroy them: which practice has, I am ſorry to ſay it, continued down to our days; whereby our lives are not only much ſhortened, and ſubject to innumerable diſeaſes, but we are become ſuch a puſillanimous race as our primitive fathers would regard with contempt. Perhaps ſome perſons may be apt to ſay that, as we have been trained up in a courſe of luxury by our fathers and grand-fathers, to deſiſt from it at preſent, would be attended with a numerous train of ills, as lowneſs of ſpirits, bodily diſeaſes, and, perhaps, immediate death. To which I anſwer, that we have daily inſtances to the contrary, of perſons, even of the moſt delicate frame, who have entirely omitted all kinds of aliments except milk, water, and vegetable food, and have thereby not only freed themſelves of the moſt inveterate diſeaſes, but have acquired ſuch a conſtant flow of ſpirits, and tranquility of mind, as our modern epicures can form no idea of; and, which may be juſtly called the ſerene and manly pleaſures of life. But, to return to my ſubject. The ſolid ſubſtances which nature ſeems to have dictated for our uſe, are vegetables of all kinds, fowls, fiſh, and the fleſh of various kinds of quadrupedes, and theſe moderately ſeaſoned with ſalts, vinegar, and oil. But when men diſobey the dictates of nature, and cram their bodies with high ſeaſoned meats, rich ſauces, and plenty of ſtrong wines, or ſpirits, and uſe very little or no exerciſe; their fibres, from the conſtant ſtimulus that they receive from thoſe hot aliments, will, in the firſt place, be contracted much above their natural ſtandard; their fluids will be divided and diſſolved, and the contents of the larger veſſels be forced into thoſe which are ſmaller; hence ariſe obſtructions, and an accumulation of juices, which deſtroy the ſpringineſs and elaſticity of the fibres of the capillary veſſels. The ſpringineſs and elaſticity of theſe veſſels being weakened, and the body continually cramed with ſuch aliments as I have juſt now made mention of, the accumulation of juices upon the capillary veſſels muſt be increaſed, and, by the conſtant ſtimulus which they occaſion, an inteſtine motion, and, conſequently, heat, and inflammation of theſe juices muſt ſoon follow, which will give riſe to the moſt acute diſeaſes of the nervous kind; as dejection and lowneſs of ſpirits, melancholy, *&c.* which, for the moſt part, end in conſumptions and decays, the very diſeaſes which thoſe people are endeavouring to prevent. From a proper uſe of the aliments which nature ſeems to have dictated for our uſe, whether ſimple, or variouſly prepared, it is apparent that the nutrition, growth, life, and procreation of the human ſpecies, are principally ſupported and preſerved: neither does the different kinds of aliments make any material alteration in the various functions of the body; for it may be eaſily demonſtrated that its parts and organs have a power of converting thoſe ſubſtances, which nature ſeems to have ordained for our nouriſhment, into a matter ſimilar to their own, and, conſequently, fit for reſtoring ſuch parts, or fibres, as are weakened, or decayed. For daily experience teaches us, that a ſoft fluid ſubſtance, ſuch as milk, or broths, will not only properly nouriſh the fluids of the human body, but will be converted into ſuch parts of its ſubſtance as are the moſt compact and tough, as bones, tendons, and ligaments. The generality of mankind have entertained a notion that thoſe perſons who drink freely of ſtrong wines, or ſpiritous liquors, can never abſtain therefrom, without much injuring their conſtitutions, quickneſs of underſtanding, or ſharpneſs of wit; but, upon a critical examination of this matter, it will evidently appear, that this notion is vague and groundleſs; as perſons, who drink freely of wine and ſpirituous liquors, have never any regular flow of ſpirits, greatneſs of underſtanding, or quickneſs of wit, except when they are full of wine, or ſpiritous liquors; and when the ſtimulating quality of the wine, or ſpirits, is exhauſted in the body, they are melancholy and dejected, and remain ſo 'till their bodies are again repleniſhed therewith: ſo that we may regard the lives of thoſe perſons as a ſcene of miſery, interſperſed with ſome faint enjoyments of pleaſure; I ſhall not mention happineſs, for that is a bleſſing which they have not the leaſt idea of. Whereas, if thoſe perſons would but gradually decline the uſe of theſe ſtrong liquors, and ſubſtitute in their room ſome of the ſoft balſamic fluids which are agreeable to nature, they would not only recover a good conſtitution, and a conſtant flow of ſpirits, but a greater degree of ſtrength, and quickneſs of judgment, than they could poſſibly have obtained before: for it will for ever be obſerved, that when the body is diſordered, the mind will be ſo likewiſe, and, conſequently, the judgment will be impaired. But, farther, I have juſt now obſerved, that the powers of the human body are capable of converting the aliments, which their ſeveral parts require for nouriſhment, into a matter ſimilar to that of thoſe parts, and that the moſt tough and compact ſubſtances of the body are generated from the moſt fluid and balſamic particles of our aliments: now, leſt any objection ſhould be made to theſe aſſertions, I will here prove them to be true, and capable of a demonſtration. When any perſon has a bone broken, or a tendon cut through, he will find that the nouriſhment which the part receives, will, in about forty days, again unite that bone, by forming a callous ſubſtance, which is both ſtronger and harder than any other part thereof, notwithſtanding the perſon has fed on nothing but broths, milks, or teas: and the divided tendon, with proper care, may be again united, in leſs than ten days, by the nutritious matter which it likewiſe receives. Again, when a perſon cuts off the hair of his head, or his nails, he will find that the former will be renovated again in about ten months, and the latter in leſs than one month. But, perhaps, ſome perſons may be apt to ſay, that we are not always nouriſhed with liquids, and that the ſolid parts of our bodies are nouriſhed and renovated by the ſolid aliments which we eat. To this I anſwer, that the chyle, with which the body is nouriſhed, is compoſed of the moſt fine and fluid particles of the aliments, as their moſt groſs and ſolid parts will not enter the lacteal glands, and theſe are again divided and refined by the minute ſtrainers of the body, before they can arrive to its extreme parts, and be converted into nouriſhment.

ment. Hence, therefore, we may conclude, that the ſolid, and moſt tough parts of our bodies, are nouriſhed, and renovated, by the moſt fine, fluid, and balſamic particles of our aliments, as theſe particles are known to have the greateſt attractive coheſive force, and are certainly the moſt proper to nouriſh, and compoſe thoſe parts. The parts I have juſt now mentioned, and, in fact, all the other parts of the body, will be more or leſs nouriſhed, in proportion as the bodily organs do exert their due force, by which they aſſimulate the aliments into a ſubſtance like their own: for when thoſe organs do exert ſuch a degree of force as may be capable of minutely dividing the aliments, and conveying them to their reſpective places for nouriſhment, the body will be in perfect health. But whenever there is not a due force in the bodily organs, the aliments will not be properly aſſimulated, and a diſeaſe will immediately be generated. Let us ſuppoſe all the parts of the human body to be in a healthy ſtate, yet deprive them of that nouriſhment which they receive from the aliments, and the whole will ſoon decay, and a conſumption be the immediate conſequence thereof. Daily obſervations, and experience, inform us, that this aſſimulation of the aliments into the parts of the human body, may be performed by it with more or leſs eaſe, according to the different nature of the aliments in their crude ſtate, and likewiſe according to the different artificial preparations and changes, which they undergo. For inſtance, ſuch aliments as are compoſed of particles, whoſe attractive coheſive force is very great, will be found to be of hard digeſtion; and ſuch as are compoſed of particles, whoſe attractive or centripetal force is very ſmall, will be very eaſy to be digeſted and aſſimulated into the body. Again, ſuch aliments as are very hard of digeſtion in a crude ſtate, may, by artificial preparations, be rendered much more eaſy of digeſtion, *i. e.* ſuch aliments, whoſe particles have a very great centripetal or attractive force, as farinaceous ſeeds, fleſh of animals, *&c.* may be variouſly divided, according to their nature and texture, and afterwards may be ſo cooked by fire, as to deſtroy, in a great meaſure, the attractive force of their particles, and be made very eaſy of digeſtion in the human body; by which they are better fitted for continuing its ſeveral actions, and renovating its ſeveral parts. The effects of all theſe preparations of our food, are, that we may deſtroy the great attractive force of their particles, ſo that they may be intimately mixed, diluted, made more fluid, and rendered capable of being digeſted, and perfectly attenuated, by the actions of our bodies, ſo as to be fitted for nouriſhing and renovating its ſeveral parts, and for paſſing the ſeveral organs of ſecretion and excretion. Nothing is more conducive to health than an intimate and uniform mixture of the ſeveral particles of the aliments with our blood; and this can never be performed without the preceding diviſibility of the particles of our aliments. The fluidity of our fluids do ariſe, in a great meaſure, from the lubricity or ſmoothneſs of the particles whereof they are compoſed; whereby their points of contact are very ſmall in proportion to their ſolidities,

ties, and by that means they ſlide eaſily upon each other, without any conſiderable friction; that lubricity of parts may be likewiſe made by blunting their ſharp points, ſtriking off their inequalities, and ſheathing their aſperities, by friction, and ſtrong and repeated motion. But this cannot be performed except the conſtitution is very ſtrong, robuſt, and uſes violent exerciſe. We frequently ſee the common labouring people eat various kinds of ſolid food, without ever drinking; and yet that food is digeſted and converted into a fluid nouriſhment; but this muſt be done by the violent attrition it undergoes, whereby its parts are minutely attenuated, and the ſurfaces of their particles made ſmooth. Some parts of our food are perfectly aſſimulated by the organic powers of the body, ſo as abſolutely to become parts of themſelves; and, again, there are other parts which reſiſt the force of all the powers of this machine, and are, therefore, detached off there-from, by the firſt evacuation, unaltered. In the firſt digeſtion, and in the fœces, we frequently meet with ſome parts of our food crude and un-

undivided, as the ſkins of gooſberries, cherries, potatoes, and ſeveral other kinds of vegetable and animal ſubſtances; and ſo likewiſe in the urine, after the ſecond digeſtion, we find ſome ſubſtances which will ſeparate from the reſt: but, ſtrictly ſpeaking, the aliments, after having paſſed theſe two digeſtions, are not properly attenuated for nouriſhment, and are only ſubjected to ſuch ſeparations to facilitate the ſubſequent digeſtion in the body. For inſtance, a perſon who drinks fleſh broths, gellies, or pure milk, does not require ſuch a force to be exerted by the digeſtive organs, as if he had eat the ſolid fleſhy parts of animals, or hard farinaceous ſubſtances, whoſe parts are to be minutely divided, before their nutritious juices can be applied for nouriſhment. Hence, therefore, the reaſon why light aliments are moſt agreeable to weak and emaciated bodies, as all theſe preparations of our aliments are done in imitation of nature, to eaſe her.

SCHOLIUM.

Whenever, therefore, the ſolids are overcharged with a ſuper-abundant quantity of juices, eſpecially of ſuch as are ſtrongly impregnated with hot and ſtimulating particles, they, in the firſt place, are contracted much above the ſtandard of nature, and afterwards, when all their force is ſpent, they let looſe their contractions, and fall into an irrecoverable relaxation; and the fluids, in the firſt place, contract a lentor and viſcidity, afterwards form obſtructions and ſchirrous ſwellings, and laſtly, fall into inteſtine motions, and grow putrid: hence proceed conſumptions, decays, and all the train of nervous diſeaſes. Experience renders obvious, that the inhabitants of any nation, or climate, can very well bear the inclemencies of their atmoſphere, or any other effects which may be produced thereby, if they are careful to be regular in the uſe of their aliments, and follow the dictates of their faithful friend nature herein; but whenever they begin to diſregard her admonitions, and indulge themſelves in exceſs, they will immediately find the periods of their lives not only much ſhortened, but made a conſtant ſcene of ſorrow and diſeaſes. This is the fate of thouſands, nay, I might have added of hundreds of thouſands, in our climate, who debauch themſelves with the irregular uſe of their aliments, till they have reduced their bodies to perfect ſkeletons, and this before they have lived out, perhaps, the half, or one third part of that life, which, according to the order of nature, they might reaſonably have expected, had they but followed the dictates of their faithful friend and monitor. But, farther, how imprudently, and, in fact, unreaſonably, do they act, who feed, and, indeed, pamper young children with poignant and hot ſauces, and the higheſt ſeaſoned meats added thereto; with rich wines, and with all manner of delicious cordials. The veſſels and fibres of thoſe little creatures, are, by this means diſtended, and they come to maturity long before the time ordained by nature; but what is the conſequence thereof? Theſe little mortals, perhaps,

haps, are ſeverely afflicted with diſeaſes, or if they ſhould eſcape theſe effects, they very rarely arrive to the age of maturity, never to half the natural age of man: for as our bodies are in a continual flux and reflux, and our fibres capable of undergoing no greater extenſion than nature has limited, we gain the achme of ſtrength, and arrive at maturity, ſooner or later, according as we more or leſs indulge in a luxurious way of living, and, conſequently, fall into decay accordingly. But what is yet more ſurprizing, is, that thoſe fond parents do it out of kindneſs to their children, and imagine that, by ſo doing, they ſhall make them appear more lively and active than could be expected from children of their age, and be men and women ſooner than nature has ordained; but I would adviſe ſuch parents, if any ſuch at this preſent are, not to be their children's murderers, as, by the treatment I have already mentioned, they abſolutely are, but rather to ſhew their affection, by nouriſhing them as nature hath dictated.

PROPOSITION IV.

Of exerciſe and reſt, their effects upon a human body, and the means by which the irregular uſe of either, is capable of diſpoſing the body to decays and conſumptions.

BEfore we can poſſibly explain the influence of exerciſe and reſt upon the human body, and the effects which are the conſequences thereof, it will be neceſſary for us, in the firſt place, to define their nature and cauſe, and what difference there is between an animal body, when awake, and in exerciſe, and when aſleep, and at reſt. Firſt, then, an animal body is ſaid to be awake, and in exerciſe, when his external and internal organs of ſenſe, together with his inſtruments of voluntary motion, are ſo diſpoſed, that they can, and, in fact, do exerciſe their accuſtomed offices or motions, and be readily affected with objects. For inſtance, I am awake, when by the leaſt inclination of the mind, or influence of ſome external object, my muſcles move, my tongue ſpeaks, and my hands and feet do their natural offices:

and, by the motion of theſe, I am ſaid to be in exerciſe. Vigilance therefore depends entirely upon the preſence of a large quantity of animal ſpirits in the brain, and its appendages the nerves and muſcles; and alſo upon the good condition of the fibres which compoſe thoſe parts; *i. e.* when there is a proper quantity of ſpirits ſecerned in the common ſenſory, or in the whole origin of the nerves, from the cortical ſubſtance of the brain, and ſent into the nervous tubes. Hence, therefore, vigilance in the human body conſiſts in an equable repletion of all the nerves which ariſe from the brain. 2dly, We are to obſerve, that ſleep or reſt is a ceſſation from all voluntarily action: that is, when we are awake, we perform all kinds of motion from the contraction of our muſcles; but when we are aſleep, all theſe muſcles, except thoſe appropriated to involuntary motion, or to which the mind has always given ſuch a conſtant ſupply of ſpirits, that it does it without the aſſiſtance of any of the other faculties, are in a kind of relaxation, or looſeneſs; and all the antagoniſt muſcles are in an equilibrium and equality of action, not in the leaſt over-powering one another. For as the fibres are over-ſtretched by exerciſe, ſo this appears to be the great deſign of ſleep, to enable the over-ſtretched parts to recover their tone and elaſticity. But farther, ſleep not only procures a ſuſpenſion from acting of all our bodily organs, except thoſe appropriated to involuntary motion, but a ceſſation from ſuch thoughts and actions of the mind, as will diſturb this tranquil ſcene. From hence we muſt conclude, that the motion of all the fluids of the body are even and regular, and, as I have already obſerved, all the minute ſecretions of the lymphatic and other juices will be increaſed, and thoſe which depend upon muſcular motion will be decreaſed. Hence alſo I muſt likewiſe obſerve, that the influx of the nervous juice into the organs of the body, and its reflux to the brain, is very inconſiderable in ſleep: for 'tis muſcular motion and ſenſation, that cauſe the influx and reflux of this fluid; but yet, by the continual ſupply being brought to the brain of the arterial fluid, this fluid will be continually ſeparated there, and fitted to be inſtantaneouſly protruded through its minute tubes. It evidently appears, that the time of watching and exerciſe, is the time of wearing out the organs of the human body; and the time of ſleep is the time in which they are repaired and recruited. For action does always impair the ſprings of the elaſtic fibres, and waſte their ſubſtance; which cannot be reſtored, but by their being in a ſtate of inactivity, and by the regular and uniform courſe of the arterial fluid, which muſt conſequently follow. From what has been ſaid it will evidently appear, that whatever produces ſuch a diſpoſition of the ſolid and fluid parts of the body, will cauſe ſleep, and whatever will hinder this diſpoſition, will hinder ſleep: inſomuch as this is the only means nature has to preſerve the animal œconomy. Theſe things being conſidered, it will appear very obvious, how an irregular uſe of either of theſe is prejudicial to the body, and diſpoſes it to conſumptions, and other diſeaſes. Continued exerciſes make us ſleepy; as theſe weaken the elaſticity and ſpringineſs of the fibres, greatly promote the expurgatory ſecretions, make the blood more hot and inflamed, and conſequently incline the mind not to promote any more motion, on account of the pain and uneaſineſs with which it is attended: then certainly we muſt needs deſire to relax, or lay to reſt. If, therefore, we, in this point, diſobey the dictates of nature, and appropriate the time that ſhe has appointed for our reſt and ſleep, to a conſtant courſe of gluttony and debauchery, we deſtroy the elaſticity and ſpringineſs of the fibres, highly ſaturate the fluids with hot and acrid juices, and in a very little time reduce the body to its primitive duſt. Again, on the other hand, when we neglect that degree of exerciſe which is requiſite to keep the fluids in ſuch a ſtate of fluidity as may be proper for their paſſage through their containing veſſels, and to maintain the ſpringineſs and elaſticity of the fibres, we ſuffer the former to grow viſcid and tenaceous, and the latter to fall into an irrecoverable relaxation; whereby chronical diſeaſes of various kinds are generated, which will be more or leſs violent, according to the nature of the conſtitution, and the violence of the offending cauſe, and conſumptions and decays will be the conſequence. Experience very clearly demonſtrates, that a ſedentary, lazy, and unactive life, will create a viſcidity and lentor in the juices, becauſe they have not a due degree of agitation, and will diſpoſe the fibres to relax, whereby the aliments will not be properly diſtributed in the body for the nouriſhment of its ſeveral parts. And hence ariſe obſtructions, and that lentor and viſcidity of the juices that affect the viſcera: from this we may likewiſe judge of the reaſon why ladies, and perſons of a delicate, nice, and curious texture of body, are ſo very liable to vapours, lowneſs of ſpirits, and other nervous diſorders, which generally are the introduction to waſtes and conſumptions.

PROPOSITION V.

Of the paſſions, the ſurprizing turns that they give to the animal œconomy, and the means by which they diſpoſe the body to decays and conſumptions.

OF all the non-naturals, the paſſions have the greateſt and moſt immediate influence upon the body; and as their influence, and conſequently effects, will depend, in a great meaſure, upon our manner of uſing the reſt of the non-naturals, ſo I have thought it moſt prudent to treat of their natures and effects, in the laſt propoſition of this chapter. When we take a critical ſurvey of the paſſions, it will evidently appear, that they are nothing more than an aſcendancy which our deſires gain over our reaſon. Perſons of the moſt weak and ſhallow underſtandings, are for the generality endued with the ſtrongeſt paſſions: but, in my opinion, ſuch perſons may more properly be called brutal than rational beings. The brute creation are entirely governed by their paſſions, becauſe the ſupreme Lord of all things has denied them the more noble faculties which he has given to the human ſpecies, to the end that he might make the latter capable of receiving the higheſt degree of glory, if they adhered to his dictates, and kept their paſſions in ſubjection to their rational faculties. But with what deteſtation and horror ſhould we regard thoſe of our ſpecies who lull reaſon aſleep, and let their paſſions have the aſcendancy? Our paſſions makes us much more wicked and cruel than the beings of the brute creation; as theirs are no greater, nor more violent, than nature has beſtowed upon them; whereas ours are frequently inflamed and vitiated. We may regard the brute beaſts in a much more favourable light than thoſe perſons, conſidering the degree of knowledge that each enjoys. But to return to my ſubject. As the paſſions are only deſires, they ought to be kept in ſubjection to reaſon, their ſovereign judge; for whenever we ſuffer ourſelves, upon any of their irregularities, to be carried away by the torrent of our deſires, and to be diverted from that reaſonable end that the Almighty has ordained for us, we then invert the orders of nature, and degenerate from rational beings, to irrational and rebellious creatures. 'Tis our paſſions that direct us in all the irregular actions which we purſue in the courſe of our lives. What is it that excites us to purſue a voluptuous courſe of life, and thereby ſurcharge our feeble bodies with gluttony? Anſwer, our paſſions. What is it that ſpurs us on in debauchery, perhaps, even to the deſtruction of our neighbour's reputation and family? Anſwer, our paſſions. What is it that makes us covetous, ſo that we would even, if it lay in our power, reduce our neighbour to poverty and miſery, to enrich and aggrandize ourſelves thereby? Anſwer, our paſſions. What is it that moves us to ambition, to pride, and to a contempt of our fellow-creatures? Anſwer, our paſſions. What is it that fills us with revenge, envy, malice, deſpair, cares, troubles, dejectedneſs, and ſorrowfulneſs, after diſappointments? Anſwer, our paſſions. Having proceeded thus far to define ſome of the general effects of the paſſions upon the human body, I ſhall now proceed to point out the effects which each particular paſſion is capable of raiſing therein, and by what means theſe effects are capable of producing decays and conſumptions. Anger is raiſed by the ideas of diſobliging actions, which fix themſelves on the common ſenſory, and excite the moſt wrathful and turbulent paſſions, which, when continued for any time, may be regarded as a ſpecies of madneſs. This paſſion of anger makes us purſue the moſt deſperate and extravagant actions. How frequently do we ſee this ſingle paſſion lull every ſpark of reaſon to ſleep, and carry away perſons with ſuch a vehement torrent as to make them loſe even the uſe of ſpeech; nay, ſometimes to put a ſtop to the fine machinery of the brain and nerves, whereby thoſe chief ſprings of nature have been entirely deſtroyed. Anger cauſes a violent rarefaction of the blood, and a contraction of the fibres, which is frequently attended with the moſt violent diſorders; as apoplexies, fevers, madneſs, phrenſies, and, in women, violent hyſteric fits; and ſometimes

times with phthiſical conſumptions. Fear is known to relax the fibres, retard the ſecretions, and cauſe a lentor and viſcidity of the juices, and is for the moſt part followed with hypochondrical and hyſterical diſorders and conſumptions. Joy is the moſt extraordinary of all the paſſions ; ſometimes it relieves the depreſſed conſtitution, and at other times it is attended with ſudden death. This paſſion is cauſed by the very agreeable image of ſome object placed upon the common ſenſory, which, in the firſt place, cauſes a violent emotion, or confuſion of the animal ſpirits, or inſtruments of motion ; and, ſecondly, a tumultuous motion of the ſame ; which, in ſome weak conſtitutions, or, in fact, in thoſe not accuſtomed to ſudden tranſports, brings on immediate death. But neither of the paſſions is ſo frequently followed with a train of malelovolent effects as envy. This paſſion is like a worm that is continually gnawing on the vital powers. The image of the envyed object is firmly fixed on the common ſenſory, and if it has the aſcendancy of the envying perſon, it continues to diſturb and waſte his ſpirits, and to diffuſe its poiſon through the whole conſtitution, which is generally followed with decays and conſumptions. But as all the paſſions may be badly perverted, and lead us into the greateſt irregularities, ſo, by a contrary turn of mind, they may be uſed for the braveſt actions. By them, *i. e.* the benevolent paſſions, it is that we are excited to purſue the moſt laborious and ardent ſtudies, thereby to rival, or to gain the aſcendancy of our fellow-creatures, who are the explorers of the hidden myſteries of nature. By them it is that we improve arts and ſciences, and purſue the untrodden paths of nature, for the benefit and poliſhing of the human ſpecies. But I had almoſt forgot a paſſion which is frequently the cauſe of conſumptions, and other very dangerous diſeaſes, and that is love: how often do we ſee diſappointment in this tender paſſion, overturn all the happineſs and comforts of life, eſpecially in perſons of the moſt tender and delicate conſtitutions. There are ſome ladies who, by a diſappointment of this kind, will be deprived of all the happineſs in life; it preys upon their ſpirits, and gives riſe to incurable conſumptions. There are many women who, upon the death of a tender huſband, dearly beloved infant, or much valued friend, will refuſe all the comforts, pleaſures, and ſatiſfactions of life, and, when in the midſt of plenty, ſicken and die. This paſſion greatly preys upon the conſtitution, and, conſequently, will eaſily diſpoſe the body to conſumptions and decays.

CHAP. XII.

Of the judgment of the events of the different ſtages, as well as of the different kinds of conſumptions.

PROPOSITION I.

The events of decays and conſumptions, in all their ſtages, may be judged of from the nature of the parts affected, and the violence of the ſymptoms.

IN my preceding chapters, I have endeavoured to define the nature and cauſes of conſumptions, and the ſeveral effects or ſymptoms that ariſe ſucceſſively in their progreſs; and now I am led to treat of their events or prognoſtics, or that part of the medicinal art which informs us of the termination of the diſeaſe, from its nature and cauſe, and the given circumſtances of the patient. Of all the phyſicians who have written on this part of the medicinal art, none have made ſuch a progreſs therein, as the great *Hypocrates.* Whenever this great man prognoſticates a fatal termination of a diſeaſe, any perſon, who has the ſame diſeaſe, with the ſame effects, and in the ſame given circumſtances, will certainly ſhare the ſame fate. Therefore any practitioner, who would be a juſt prognoſticator of the termination of diſeaſes, ſhould endeavour to build his ſtructure upon this foundation. Any young practitioner may gain a greater reputation by this branch, than by any other branch of the medicinal art; for a perſon who has a juſt knowledge of this, may be juſtly ſaid to have a thorough knowledge of all the cauſes, ſtages, and ſeveral effects of the diſeaſe; for without the knowledge of thoſe, it will be abſolutely impoſſible for him ever to make any juſt and certain prognoſtication. How can any perſon pretend to determine aright the events of diſeaſes, except he is thoroughly acquainted with their nature and cauſes; and to underſtand aright the nature and cauſes of diſeaſes, he muſt un-

underſtand the principles upon which they ſubſiſt, together with the ſtructure and mechaniſm of the ſeveral parts of the body: and a perſon who has a thorough knowledge of all theſe, will not fail, with prudent management, of gaining a great and deſerved reputation. A phyſician, who is ignorant in this particular, cannot give that ſatisfaction to the patient, or his friends, as he might otherwiſe have done, but muſt frequently be expoſed to their cenſure. A phyſician, therefore, who would act conſiſtently with his character, and determine rightly concerning the events of the ſeveral ſtages of conſumptions, ſhould, in the firſt place, be very careful to examine into the nature of the diſeaſe, the parts of the body which are affected thereby, and in what degree thoſe parts are affect. The nature of a conſumption may be known from the effects, which, at the ſame time, will likewiſe ſhew us the intenſeneſs of the diſeaſe. The violence of the diſeaſe being given, together with the greater or leſſer impreſſions it has made upon the body, the events thereof may be judged of by the length of time theſe breaches have been a forming; for all conſumptive decays will be more or leſs dangerous, according to the time of their continuance. After we have conſidered of theſe things, the parts affected are the next that ſhould come under our conſideration. Theſe are to be diſcovered from their actions being impaired, which evidently denotes a load hanging upon them greater than they can rid themſelves of. An organ can never be affected and impaired, except from ſome offending matter; and in judging of the events of ſuch malevolent affection, we muſt conſider the dignity of the organ affected, as it is more or leſs neceſſary to life or motion. If we perceive a purulent noiſome ſpitting, attended with a hollow ſounding cough, a waſte of the membranous muſcular parts, joined with a hectic fever, and night ſweats, we may conclude that the patient is in imminent danger; and that there is an ulcer formed in the lungs, and has been for ſome conſiderable time ſtanding: in fact, an ulcer ſeated upon any of the principal bowels, and of any time ſtanding, generally

nerally ends in death. When the conſumption makes but a ſlow progreſs, and is attended with mild ſymptoms, it is more eaſy to be cured than when its effects are more violent, and its progreſs faſt. A conſumption, that is attended with ulcers of the lungs, or of any of the other principal bowels, is very rarely cured: an ulcer of the lungs, of any time ſtanding, always ends in death. When a conſumption ariſes from a ſuppreſſion of any of the evacuations, it is much ſooner cured than when it ariſes from their ſuperabundant diſcharges; for the fine juices of the human body are much eaſier decreaſed than increaſed. Theſe conſumptive caſes which are curable, are generally taken cognizance of in time; for, in fact, whenever theſe diſeaſes have taken any root in the body, they become inveterate, and all aſſiſtance may be implored in vain. Whenever the legs begin to ſwell, eſpecially towards evening, and ſuffer impreſſions made with the finger, which remain after the force is removed, we may ſuſpect that the fibres of the body are relaxed, and that the conſtitution is about to fall into decays and waſtes. When a conſumption comes upon a peripneumony, pleuriſy, aſthma, ſmall-pox, or nervous diſeaſes, we may ſafely pronounce it mortal. If no ulcer affects the lungs, nor any of the other great bowels, the cure of a conſumptive caſe may be attempted with ſucceſs, although the conſtitution be waſted and emaciated even to a mere ſkeleton; more eſpecially if the patient is reſolved to obſerve ſome regularity in the uſe of the non-naturals. Whenever the ſymptoms increaſe upon the receſſion of one evacuation, there is danger in the caſe; but if the other evacuations are likewiſe hereby increaſed, death will certainly terminate the ſcene. When the digeſtive powers of the body are much weakened, it will generally be obſerved, that the ſuppreſſion of one evacuation will always increaſe the others: for inſtance, when we endeavour to check the night-ſweats and hectic fever, we generally increaſe the flux by ſtool; and when we ſuppreſs the flux by ſtool, we increaſe the hectic fever and night-ſweats; beſides the tranſlation of this matter from one part of the body to the other, will likewiſe increaſe all the other ſymptoms, and thereby be very detrimental to the patient. Some conſumptions are hereditary, and the children who are ſo unfortunate as to be thus born, as it were to live in miſery, and to nouriſh the ſeeds of their deſtruction, are generally weakly, ricketty, and in pain, from their very infancy. But when a conſumption is contracted in a perſon's lifetime, it muſt always ariſe from the irregular uſe of the non-naturals; the chief of which, that ravage the conſtitution, and give riſe to waſtes and conſumptions, are eating, drinking, and frequenting too much the company of lewd women. When the fibres of the body are much weakened, and the body greatly emaciated, if we remove the cauſe of the diſeaſe, yet its effects will be frequently obſerved to continue for ſome time; and the reaſon of this is very obvious. For when the offending matter is forced into any minute ſeries of veſſels, it cannot be again eaſily removed, notwithſtanding the fountain from whence it aroſe, is entirely dried up and deſtroyed. If the conſtitution is ever ſo much emaciated and weak, yet if the fibres of the ſtomach, lungs, and inteſtines, maintain, in any degree, their ſpringineſs and elaſticity, the body may be reſtored to its priſtine vigour and ſtrength. During the time that the body labours under a conſumptive decay, if the urine loſes its natural ſmell and taſte, after it has continued for ſome conſiderable time in the body, we may conclude that the diſeaſe is attended with danger, for this is a ſtrong token that the fibres of the veſſels which compoſe the digeſtive powers, have loſt all their elaſticity, and are receding from their former conſtitutions. A Tabes Dorſalis, which owes its riſe to gleets, and large ſeminal evacuations, is very dangerous, although it will, for the generality, admit of a cure, if the patient will purſue a regular courſe of phyſick, and of the non-naturals. Large diſcharges of the whites in women are likewiſe dangerous; they inervate the conſtitution, diſpoſe the body to a Tabes Dorſalis, and frequently, if not timely remedied, end in death. Women are frequently threatened with conſumptions from an obſtruction of their menſtrual diſcharges, but this is not attended with ſo much danger as an irregularity, or an over-large diſcharge of this evacuation. In all conſumptive caſes, a coſtive belly is preferable to a looſe one, if it ſuffers the excrements to paſs off without any pain; for a looſe belly is very liable to haſten on the decay, by ſuffering the fine balſamic parts of the blood to paſs off without any reſiſtance, and thereby depriving the body of its nouriſhment; whereas a coſtive body will retard, in ſome meaſure, the diſcharges of thoſe juices; but then we muſt be very careful to uſe all poſſible means to leſſen likewiſe the cutaneous diſcharges. When the conſumption has been of long ſtanding, and its effects inform us, that there is an ulcer in the lungs, we are to prognoſticate death; more eſpecially if there is a ſwelling of the legs, a weakneſs of the joints, a conſtant tremor of the hands and feet, and a univerſal decay of ſtrength and appetite: but even now a phyſician is not to abandon his patient, but ſhould uſe all his endeavours to palliate his dolors, till death, now his beſt friend, do entirely remove them all.

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SCHOLIUM.

If therefore we carefully examine this ſpecies of diſeaſes, it will evidently appear, that they are not more difficult of cure than any other chronical diſeaſes, if the remedies are ordered in time; but the generality of mankind, who are buoyed up with the flattering hopes of recovery, ſuffer them to take firm root in the body, before they imagine that they ſtand in need of any advice: however, it muſt be confeſſed, that diſeaſes of this kind, above all others, do flatter the poor patient with hopes of recovery, when an indifferent perſon may eaſily perceive that they muſt terminate in death.

CHAP. XIII.

Of the general cure of waſtes and conſumptions.

PROPOSITION I.

The moſt effectual method of reſtoring a conſtitution that labours under decays, that is, to remove the cauſe of a conſumption, is, in the firſt place, to brace the ſolids, render pervious the veſſels, and endeavour to bring the body into a condition of being nouriſhed.

IN my preceding chapters, I have evidently proved, that the procatarctic cauſes of a conſumption, are a relaxation of the fibres of the body, and a viſcidity of the juices, the conſequence thereof; and that theſe give riſe to obſtructions, ſchirrous ſwellings, ulcers, *&c.* which deprive the parts of their proper quantity of nouriſhment, and thereby ſubject them to decays and waſtes. My preſent propoſition, therefore, leads me to prove, that the moſt effectual method of relieving a conſtitution that is thus oppreſſed, is to brace the fibres, render pervious the veſſels, and bring the body into a condition of being nouriſhed. The human body is ſuch a fine piece of machinery, that if every part thereof is not properly nouriſhed, the whole machine is immediately thrown into diſorder, (as in the caſe before us) and this diſorder can never be cured before the cauſe thereof is removed, *i.e.* before the part is again properly nouriſhed; which cannot be performed till its veſſels, and thoſe which lead towards it, are rendered pervious, and their fibres properly braced. Whenever we attempt to reſtore a conſumption by any other means; by abſorbing, as it is phraſed, the acrid or acid juices; by healing the ulcers with oily medicines and balſams; by ſtopping the evacuations, and by that means, accumulating the matter diſcharged thereby, upon the conſtitution; means generally made uſe of for this purpoſe; we uſe our utmoſt endeavours to haſten on the the decay, and conſequently to ſhorten the period of the patient's life.

PROPOSITION II.

The beſt method of rendering pervious the veſſels, bracing their fibres, and bringing the parts into a condition of being nouriſhed, is, to leſſen the viſcidities and coheſions of the ſeveral compounding particles of the blood.

WHILE the blood remains in a ſtate of viſcidity and tenacity, it cannot circulate freely through the minute ſeries of veſſels in the extreme parts of the body, and except the blood can circulate freely through any part, that part can never be properly nouriſhed; and as its fibres are likewiſe relaxed, and not able to give a proper reſiſtance to the juices forced upon them, by the impulſes of the circulation, the viſcid tenaceous blood will accumulate thereon, obſtructions will be formed, and finally the parts rendered incapable of performing their natural functions. Therefore, except the lentor and viſcidity of the blood is firſt diſſolved, the parts cannot be de-obſtructed, nor their natural functions be reſtored.

PROPOSITION III.

The viſcidity and coheſions of the blood will be moſt certainly leſſened by ſuch means as are the propereſt to increaſe the ſeparations and ſecretions of the ſerous and lymphatic juices.

WHatever means will increaſe the glandular ſecretions, will undoubtedly increaſe the fluidity of the blood: for when the blood is thick and viſcid, its particles are ſo tenaceous and firmly cohering, that they will not enter the capillary veſſels, nor ſuffer their ſerous and lymphatic parts to be ſeparated from them; conſequently whatever means will diſſolve the lentor and tenacity of the blood, will likewiſe increaſe the glandular ſecretions.

PROPOSITION IV.

The ſeparations and ſecretions of the ſerous and lymphatic juices, will be beſt and moſt eaſily performed by ſuch methods as increaſe the momentum of the blood, expand its aerial particles, and bring it to the obſtructed ſecretory veſſels with a greater impetuoſity.

BY increaſing the momentum of, and expanding the aerial particles contained in the blood, we increaſe the centrifugal force of its particles, and, conſequently, its fluidity; and when the fluidity and impetuoſity of the blood is increaſed, it ſoon forces its way through the glandular ſtrainers, and the ſecretions of the ſerous and lympathic juices, muſt, of courſe, be immediately increaſed.

PROPOSITION V.

Thoſe means will be found moſt effectual to increaſe the momentum of the blood, expand its aerial particles, and bring it to the obſtructed ſecretory veſſels with the greateſt impetuoſity, that aſſiſt the fibres with a proper ſtimulus to increaſe their contractions and vibrations.

IT is very evident that ſuch means as will increaſe the contractions and vibrations of the fibres, will likewiſe increaſe the velocity and expanſive force of the blood: indeed the velocity and expanſive force of the blood may be increaſed by the heat which is generated by its inteſtine motions, for we cannot raiſe by art ſuch an inteſtine motion in the blood as will anſwer this end, without endangering its putrefaction, ſo that the former method appears to be the moſt natural and eaſy. When the body is in health, there is a perfect equilibrium between the contractions of the fibres, and the reſiſtances of the fluids: whenever the contractions of the fibres are increaſed, their action upon the juices is immediately perceivable; the velocity, heat, and expanſive force of the latter, will be likewiſe augmented, which will give a farther ſtimulus to the fibres, till they are wrought up to their greateſt contractions, and till the juices receive their greateſt degree of agitation; at length one or the other muſt give way, and a rupture of the veſſels, and an hæmorrhage, or a congealation of the juices, from the degree of heat they have obtained, muſt ſoon follow; which is frequently the cauſe in high fevers, and other inflammatory diſeaſes. But, on the other hand, when the contractions of the fibres are decreaſed, they are not capable of giving the fluids a due degree of motion, nor, in fact, of making a ſufficient reſiſtance to their impulſes. Hence, therefore, the velocity, heat, and expanſive force of the juices will be decreaſed, their particles will grow too viſcid and tenaceous, and too great a quantity thereof will be forced upon the relaxed capillary veſſels; by which obſtructions will be generated, and a numerous train of ills enſue.

PROPOSITION VI.

The contractions and vibrations of the fibres, will be moſt eaſily reſtored by ſuch methods as remove their oppreſſed load, and increaſe their attracting powers.

THE oppreſſive load which hangs upon the fibres, is the viſcid tenaceous juices; and whatever means will attenuate and diſſolve the viſcidity of the ſame, and at the ſame time increaſe the contractions and attractive force of the fibres, will be found to reſtore the former to their fluidity, and the latter to their ſpringineſs and elaſticity. Medicines which are aperient, and endued with a large quantity of elaſtic air, ſuch as ſalt of ſteel, and, in fact, any other chalybeat preparation, ſalt of amber, nitre, tincture of antimony, *&c.* joined to a diet eaſily digeſtable, and a regular uſe of the reſt of the non-naturals, will be found to anſwer effectually theſe ends.

PROPOSITION VII.

The maſs of fluids being reſtored to their fluidity, and the fibres to their vibrations and elaſticity; they will go on to force open the obſtructions, and to diſſolve the ſchirrous tumours, tubercles, and ſwellings, lodged in any of the viſcera, and, conſequently, to reſtore the conſtitution to its priſtine health.

WHEN the oppreſſive load is removed from the fibres, and their attractive powers increaſed, the fluids will receive a greater degree of velocity than they could poſſibly receive in their viſcid tenaceous ſtate: hence, therefore, they will be forced againſt their ſecretory ducts with a greater velocity and impetuoſity, whereby thoſe obſtructions are forced open, *i. e.* if it is in the power of art to force them open, and the tumour, ſchirroſity, or ſwelling, will be diſſolved.

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The cure of a conſumption, therefore, can be purſued by nothing more efficacious than a courſe of medicines which are gently aperient, and endued with a large quantity of elaſtic air, joined to a diet of milk and vegetables, or, in fact, of meats which are very eaſy of digeſtion; proper exerciſe, as riding in a vehicle, or on horſe-back, walking, or playing at bowls; a light, clear, and ſpringy air, not too ſharp, and a command of the paſſions. Theſe will be found to diſſolve the viſcidity and tenacity of the fluids, reſolve the obſtructions of the ſeveral viſcera, increaſe the contractions and elaſticity of the fibres, reſtore them to their proper ſpringineſs and tenſion, the fluids to their due velocity and fluidity, and, in fact, the body to its priſtine health. From what I have already obſerved in the preceding propoſitions, it will moſt evidently appear, that the want of nouriſhment in conſumptive caſes muſt entirely depend upon the attracting principle of the fluids being too much increaſed, *i. e.* from their particles too firmly cohering to each other, by their not receiving a due degree of velocity from the actions of their containing veſſels, which are too much relaxed in their ſpringineſs, and depreſſed beneath the ſtandard of nature: it evidently appears likewiſe, that the beſt, and moſt direct method, to render the blood more nutritive, is to give its globular part a greater degree of fluidity; and the beſt way to do this, is to impregnate it with ſuch particles as are aperient and deterſive, and to reſtore the fibres to their proper degree of ſpringineſs and tenſion, whereby they may be able to force the blood with ſuch impetuoſity againſt its ſecretory ſtrainers, as to diſengage a ſufficient quantity of nutritious particles, for the reſtoration of the ſeveral impaired parts.

CHAP. XIV.

Of the wonderful Effects of the non-naturals in the cure of decays and conſumptions.

PROPOSITION I.

The regular uſe of the non-naturals, is one of the chief means of relieving conſumptive caſes.

IF we carefully peruſe the works of the moſt celebrated phyſicians, together with the arguments and reaſonings of the foregoing chapters, it will very plainly appear, how wonderfully the regularity of the non-naturals does contribute towards the relief of oppreſſed nature in the aforeſaid caſes, and how much thoſe do contribute towards the maintaining the ſprings and motions of the conſtitution. A right inſtitution of the non-naturals, is certainly the moſt direct method we can take in the cure of conſumptions and decays. It does not appear clear to me, that any perſon can poſſibly begin, or proceed properly in the cure of any diſeaſe, without rightly inſtituting the non-naturals, eſpecially in a diſeaſe of this kind, where the whole ſyſtem of ſolids, and of the fluids, are at the ſame time attacked, and in ſuch a manner, that human art labours in vain for their reſtoration. Can it be ſuppoſed that there is in nature any ſuch medicine as, by its ſpecific, or any other quality, will reſtore a perſon from a conſumption, when, at the ſame time, he diſregards the regular uſe of the non-naturals? I am well aſſured that thoſe perſons, who imagine that there is any ſuch panacea in nature, will have reaſon to alter their opinion when they ſearch after it. Where a diſeaſe attacks the whole machine, every natural means ſhould be uſed for its relief, and, if poſſible, all their effects ſhould concur at the ſame time to counteract its force. For inſtance, when a perſon is attacked with the diſeaſe about which we are treating of, it will be abſolutely neceſſary for us, at the ſame time that we order the patient a courſe of medicines, to order him therewith a diet of the lighteſt food, *i. e.* ſuch as will lay the leaſt burden on the weak and relaxed fibres; we ſhould likewiſe cauſe him to be removed to a place where the air is fine and clear, and not too ſharp: but even all theſe might prove ineffectual, if he did not uſe ſuch gentle exerciſe as his ſtrength would bear, and endeavour as much as poſſible to let reaſon have the aſcendancy over his paſſions, whereby they might be prevented from diſturbing his emaciated body. Hence it will evidently appear, how neceſſary the regular uſe of the non-naturals is towards the reſtoring decays and conſumptions. Can we then ſufficiently admire the ſillyneſs, and, in fact, abſurdity of thoſe who imagine that theſe diſeaſes are to be cured with a panacea, ſpecific medicine, or a few balſamic bolus's?

PROPOSITION II.

The air has very great effects upon the body in conſumptive caſes, which will be found to be more or leſs ſalutary, as that fluid is more or leſs clear and elaſtic.

BEfore I can proceed to point out the ſalutary effects which may be produced by the air in conſumptive caſes, it would be neceſſary for me to point out the effects which the air is capable of producing upon a human body, and the means by which it produceth thoſe effects; but this is a ſubject which ſeveral very eminent phyſicians have treated of, and which I have already performed in Chapter XIth, Propoſition IId. In that chapter and propoſition, I have endeavoured to prove, that the air influences the body by three different ways. 1ſt, By its preſſure upon the external parts thereof. 2dly, By its preſſure upon the blood in the lungs, whereby that fluid is cooled and minutely attenuated; and, I think it would be proper for me to add, impregnated with a fine elaſtic æther, which is very neceſſary for promoting the ſeveral functions of the body.

There are a great many gentlemen of the phyſical faculty, who deny that the blood is impregnated with any ſuch ſubſtance, during its paſſage through the lungs, but the contrary appears to me very obvious; nay, experience will place the truth thereof paſt all doubt. We all perceive ourſelves more active, alert, and in better ſpirits, when the air is clear, fine, and has the greateſt degree of elaſticity, which puts it paſt all diſpute, that the blood is impregnated with ſome of its fine elaſtic particles. But, perhaps, it may be ſaid, that the air does this by its preſſure only, the fibres of the body being thereby braced up, the circulation has a greater degree of velocity, and, conſequently, the body will be active and in better ſpirits. But if we examine this matter more carefully, it will evidently appear, that the air, by its preſſure only, will not produce thoſe effects; for air that has paſſed through fire, that is impregnated with ſulphurous vapours, or, in fact, with any material bodies that will counteract the force of its fine ætherial particles, will not make the body thus alert and active, notwithſtanding the preſſure upon it is the ſame. 3dly, the air produceth very great effects upon the body by its action upon the diſſolving aliments; by its expanſive force it minutely attenuates them, and fits them to be convey'd for nutrition to the ſeveral parts of the body. In conſumptive caſes, therefore, this fluid is capable of producing very great and ſalutary effects, when it is pure, thin, and has its due degree of elaſticity, and fine ætherial ſpirit; and the contrary, when it is thick, impregnated with vapours, and deprived, in a great meaſure, of its ſpringineſs and ſpirituous particles. 1ſt, Then, a fine clear air, that is impregnated with nitre, will, by its preſſure upon the external parts of the body, gently brace the fibres, and thereby increaſe the velocity of the circulation, which will not a little contribute to increaſe the ſecretions, and reſolve the obſtructions. 2dly, The air, thus fine and ſpirituous, when received into the lungs, cauſes a gentle contraction of the fibres of that organ, and enables them to preſs forward, and minutely attenuate the blood in its paſſage through its minute and tender veſſels, whereby that fluid is cooled and fitted for animal ſecretion; and, beſides, impregnated with a fine elaſtic æther, which makes it more ſprirituous, and better fitted for the uſes of the animal œconomy: this likewiſe, in ſome meaſure, prevents the blood from growing viſcid and tenaceous. 3dly, When the air is fine, and impregnated with its due degree of ſpringineſs and expanſive force, it acts more powerfully on the diſſolving aliments, and, with a leſs degree of action to the fibres, fits them for the nouriſhment of the ſeveral parts of the body. — But, on the other hand, when the air is replete with vapours, of the moiſt or ſulphurous kind, and when it has, in a great meaſure, loſt its ſpringineſs, and ætherial particles, its effects upon the body will be juſt the reverſe. The fibres on the extreme parts thereof will be relaxed, and extended, by the protruding force of the circulation, for want of proper external preſſure; the velocity of the circulation will thereby be greatly decreaſed, and the blood become more thick and viſcid.

2dly, This moiſt air, when received into the lungs, will not properly contract the fibres of that organ, nor preſs forward the blood in its paſſage through its minute veſſels; whereby that fluid will here likewiſe contract a lentor and tenacity, and be unfit to paſs its minute ſecretions; hence riſe obſtructions and ſwellings; and the rather, becauſe it is deprived of the elaſtic æther before-mention'd. 3dly, When the air hath loſt its ſpringineſs, and is replete with moiſt and ſulphurous vapour, its action on the diſſolving aliments will be very ſmall, as its expanſive force will be greatly diminiſhed; conſequently they will not be properly attenuated and fitted for the nouriſhment of the ſeveral parts of the body: beſides, the aliments will be frequently impregnated with putrid vapours, which they have attracted from the air; and which may very often give riſe to putrid and dangerous diſeaſes. Seeing, then, that the air has ſuch ſurprizing effects upon the human body, which will be more or leſs ſalutary according to its purity, ſpringineſs, and as it more or leſs impregnated with its fine ætherial particles,

cles, how careful ſhould we be to chuſe the moſt fine and clear air for a conſumptive perſon to breathe in : and how careful ſhould he be not to expoſe himſelf to its moiſture and vapours, which fall during the night ſeaſon. Thus far I have proceeded to explain the effects of the air upon a conſumptive perſon, and ſhall now proceed to enquire in what ſeaſon of the year, the atmoſphere does moſt favour our endeavours for the cure of a conſumption. The autumn, or fall of the leaf, is generally regarded as the time that moſt diſpoſes to decays and conſumptions ; ſo from thence we may judge, that the beſt and higheſt advantages the patient can expect, may be had from the ſucceeding vernal Sun. This is the time when all nature is, as it were, reanimated ; this is the time when nature uſes her utmoſt efforts to caſt off any load that may oppreſs or annoy her ; this is the time when the fluids of the human body receive, from nature, the greateſt degree of fluidity, and, conſequently, a time when its fibres moſt abound with moiſture ; and as perſons labouring under conſumptions have generally a thick and viſcid blood, this is the ſeaſon moſt proper for attenuating that fluid, and, by that means, reſtoring a conſumptive habit. The ſeaſons of the year, for this purpoſe, ſhould be regarded even more than the qualities of the weather; for there are greater alterations made in the animal conſtitution by the latter than by the former. The cold of the winter contracts and braces up the fibres, retards the motion of the fluids, renders them viſcid, and, thereby, generates obſtructions, and binds them upon the conſtitution; hence ariſe decays and conſumptions. When the ſpring advances, the genial warmth of the vernal ſun expands the particles of the air contained in the blood, rarefies its globules, and dilates the fibres; and the rather, becauſe the preſſure of the air on the external parts of the body is, in ſome meaſure, removed. The rarefied juices reſolve the obſtructions, and ſchirroſities, which have been created in the body, by the cold of the preceding winter. And thus we may eaſily perceive the reaſon why the cure, not only of this, but of all other chronical diſeaſes, may be more ſucceſsfully at-

attempted in the ſpring than in any other ſeaſon of the year. A conſumptive perſon ſhould, therefore, be removed to a place where the air is clear and fine; but we muſt, in the firſt place, conſider of the nature of the decay, and the conſtitution of the patient, before we can poſſibly diſcover the qualities of the air which may aſſiſt us to remove the diſeaſe. When the conſumption is of the atrophical kind, and not attended with an ulcer of the lungs, the air ſhould be fine, light, and open, moderately cold, and dry; the patient ſhould therefore abide in a high open country, where there are no woods, nor any other thing which may intercept the free breeze, or corrupt the air. A ſoil that is ſomewhat dry, and abounding with plenty of fragrant flowers, will greatly aſſiſt in theſe caſes; for the atmoſphere of ſuch a ſoil muſt be fully impregnated with the volatile and balmy effluvia which ariſe from thoſe flowers, and muſt be very ſalutary to a weak conſtitution, or a diſtempered lungs. A country that is full of lakes, marſhes, fens, or ſwampy places, will be very prejudicial in diſorders of this kind;

as its atmoſphere will be full of moiſt and ſulphurous particles; the effects of which, upon a human body, I have already deſcribed. But, on the contrary, when the patient labours under a conſumption of the lungs, and an hectical diſpoſition, an air that is more warm will be moſt ſalutary, and by far the moſt agreeable. If a patient, thus diſeaſed, does abide in a cold ſharp air, he ſhortens the period of his life; for when the lungs are affected with an ulcer, a ſharp keen air will always prove pernicious; for it cauſes ſuch a violent contraction of the pulmonary veſſels as will retard the free expectoration of the purulent matter, and make it much more tickling and diſagreeable. A cold heavy air likewiſe increaſes the contractions of the fibres, the velocity of the blood, and, conſequently, all the natural ſecretions; which, at firſt view, will appear to be beneficial to the diſordered perſon, as it helps greatly to reſolve the obſtructions, and to attenuate the coheſions and viſcidity of the blood; yet this will always be found to increaſe the cough and fever, and, perhaps, bring on a diarrhæa,

hæa, by exciting a greater hurry, or degree of motion, among the juices, than the patient can bear: hence the reaſon why a cold froſty ſeaſon, or, in fact, a ſharp air, proves ſo diſagreeable and diſturbing to perſons labouring under a phthiſis pulmonalis. This ſtate of the air cuts, contracts, and penetrates into their very vitals; they are continually hovering over the fire, and are cold and chilly even in that ſituation. Fertile and flowery vales are moſt proper for ſuch perſons to breath in. — When the ſummer comes on, and the air becomes hot and ſultry, all conſumptive perſons ſhould chuſe an airy ſituation, in ſome agreeable country. They ſhould frequently walk or ride out in the gardens and meadows, to breathe in an atmoſphere that is replete with the balſamic effluvia of flowers and ſalutary plants. Some authors have obſerved, that the air, wherein the perſon was born, is preferable in thoſe caſes; but, in my opinion, a change of air, and objects, appear to be the moſt agreeable, even in any cauſe where the body is weak and emaciated, and the ſpirits dejected.

PROPOSITION III.

Of the aliments that are moſt proper to give a ſpringineſs to the relaxed veſſels, to attenuate the viſcidity and coheſions of the fluids, and, in fact, to aſſiſt nature labouring under a conſumptive decay.

IN my proceeding propoſitions, I have clearly proved, that the uſe of all high-ſeaſoned meats, rich and acrid ſauces, wines, and ſpirituous liquors, when perſiſted in, will raiſe the contractions of the fibres much above the ſtandard of nature; but when the ſtimulus, excited by theſe means, is abated, the ſprings of life begin to weaken, and the body falls gradually into decays and conſumptions. It remains, therefore, that I point out ſuch a regimen as will, when judiciouſly adhered to, not only be the chief means of preſerving the body from falling into diſeaſes of this kind, but which will greatly aſſiſt to reſtore it, when labouring under their malevolence, to its priſtine vigour. It has been already obſerved, that the containing veſſels are greatly re-

relaxed, impaired, and languid, ſo it will evidently appear, that ſuch meats as are the leaſt oppreſſive thereto, in their paſſage thro' the body, are the moſt agreeable to nature; and thoſe meats are the leaſt oppreſſive to the body, that are the eaſieſt of digeſtion; and thoſe meats are the eaſieſt of digeſtion, whoſe particles have the leaſt degree of attractive force; and thoſe particles of meat have the leaſt degree of attractive force, that contain the greateſt quantity of air, and whoſe points of contact are the leaſt; conſequently meats whoſe particles adhere by the leaſt and feweſt points of contact, and which contain the greateſt quantity of air, will be found to be the leaſt oppreſſive to a conſumptive or emaciated habit of body. Hence therefore, fleſh of all kinds, whoſe muſcular parts pretty firmly cohere together, and all viſcid tenaceous ſubſtances, will be found to be detrimental in thoſe caſes, and generally fill the body with crudities; for the force of the ſtomach and digeſtive powers is not ſufficient to aſſiſt their own diſſolvents for their minute attenuation. In theſe caſes, we ſhould prefer a diet of vegetables, eſpecially ſuch as are green and tender, with light fiſh, viper broth, jellies of all kinds, new laid eggs, aſſes milk, or, in fact, milk of all kinds; the chief of which is, in my opinion, woman's breaſt milk, eſpecially when the body is much emaciated and weakened. This is a food which is proper for the weakeſt babes, it lays no oppreſſion on the digeſtive powers, as it is all chyle, and fine enough for nouriſhment, even ſuch a nouriſhment as will conform to the conſtitution and weakneſs of the body. This milk will be ſo ſoft, healing, and dividable, that it will eaſily yield to the impreſſions of the fibres, and, conſequently, will be eaſily digeſted, ſeparated, and aſſimulated into their ſubſtance. After this, aſſes milk is the moſt proper in conſumptions, becauſe it is compoſed of the moſt fine, light, ſoft, and attenuating particles; it paſſes very eaſily thro' the moſt minute ſtrainers of the body, and its attenuations and ſeparations are made with the leaſt aſſiſtance from the fibres. When the conſtitution is not too much emaciated, and weakened, ſage boiled in milk, marrow puddings, young chickens, aſparagus in ſeaſon, and veal broths, may be uſed, and will be found to be very nouriſhing food; but then the patient ſhould be very careful, as well not to offend in the quantity as in the quality of the aliments; for when the blood is charged with a ſuper-abundant quantity of chyle, the patient ſoon after becomes hot, feveriſh, and uneaſy, and remains in that condition until violent night ſweats, or a diarrhæa, remove the oppreſſive load: ſo that when a perſon labours under a conſumptive decay, he ſhould never take more food than the digeſtive powers can aſſimulate into good nouriſhment; whereby the quantity of the diſcharges will be leſſened, and, conſequently, the fibres which compoſe the veſſels leading to thoſe diſcharges, will have time to reſtore themſelves. Seeing, then, that the cauſe ſtands thus, we ſhould be very careful that the patient does never ſurcharge his body with any kind of aliments, altho' they are ever ſo reſtorative, and agreeable in the cure, for ſuch a ſurcharge will be attended with more ill effects to the conſtitution, than if the perſon had fed on bread and water. Thus far, I have proceeded to point out the kind of aliments that would be moſt friendly to a conſumptive habit of body: I ſhall now go on farther, in my next propoſition, to conſider, by what means they may be the moſt eaſily and naturally diſtributed into the ſeveral parts thereof for their nouriſhment.

PROPOSITION IV.

Of exerciſe and reſt, the degrees thereof that are neceſſary to diſtribute the aliments into the ſeveral parts of the body, for their nouriſhment; and the means by which exerciſe operates, in order to reſtore the conſtitution.

IN my former propoſitions, I have evidently ſhewn, that the body cannot long ſubſiſt in health without exerciſe, and that the centripetal force of the fluids would be greatly increaſed, and become an over-match for the powers of the ſolids, were the latter not thus aſſiſted. Daily experience informs us, that nothing will more relax the fibres, and render viſcid and tenaceous the fluids, than a ſedentary life, or a life led without exerciſe or motion. As the blood, in conſumptive caſes, is too viſcid and tenaceous, and, conſequently, its particles too groſs and firmly cohering to paſs freely through the capillary arteries, and thereby give riſe to obſtructions and ſwellings, we may juſtly conclude, that the moſt prudent method to remove theſe obſtructions and ſwellings, is to apply a force to the fibres, that may break, divide, and attenuate the particles of the blood, and, by that means, give it ſuch a degree of fluidity, as may render it capable of paſſing through the moſt minute ſtrainers of the body. There is no method that can be uſed for affecting this, that is more proper, than exerciſe or motion; and the moſt natural, and, in fact, the beſt motion yet diſcovered, for aſſiſting nature, when labouring under a conſumptive decay, is that of riding, in a vehicle, or on horſeback, into different airs, more eſpecially if the atmoſphere is moderately warm and pleaſant: ſailing in a ſhip will likewiſe be found very uſeful in the reſtoration of a decayed habit. When the conſtitution is not too much weakened, and emaciated, walking, playing at bowls, tennis, or any other gentle exerciſe, will be found to be very ſalutary, more eſpectially if theſe are performed in a fine, clear air. — Hence, therefore, we may ſee what kinds of exerciſe will be uſeful towards reſtoring a perſon from a conſumption or decay; I ſhall now proceed, under the direction of the great *Sanctorius*, to point out the means by which theſe kinds of exerciſe do operate, in order to bring about this great end. I have obſerved, in my foregoing chapters, that the fibres of an animal body have a contractive force inherent in themſelves, whereby they conſtantly endeavour to maintain ſuch a degree of elaſticity as is proper to carry on the functions of the animal œconomy. In conſumptive caſes, as I have already mentioned, the fibres are in a ſtate of relaxation, and rendered incapable of reſtoring themſelves, by the preſſure which they receive from the viſcid tenaceous fluids, which, every where, hang upon, and obſtruct them; exerciſe, therefore, if gentle, and properly ſuited to the conſtitution, will excite the fibres to motion, whereby they may be enabled to diſſolve and attenuate their viſcid contents, and give them ſuch a degree of velocity as may cauſe them to be re-obſorbed into the circulation, or to be detatched off through the ſeveral ſecretions of the body, and, conſequently, the contractions and elaſticity of the fibres will be reſtored: For it will always be obſerved, that the attracting principle of animal fibres, while the animal has life, will be greater, upon the application of motion, than their power of diſtraction, and, therefore, ſuch exerciſe as will gently excite the fibres to motion, muſt greatly contribute to bring the particles whereof they are compoſed to cloſſer contacts with each other, and, thereby, increaſe their contractions and elaſtic force. This is the means by which exerciſe has this advantage of reſtoring the texture of a fibre, and, thereby, its elaſtic force; for if exerciſe, or, in fact, any thing which gives the fibres a gentle degree of motion, cauſed a diſunion of their particles, or, in fact, increaſed their expulſive quality, then muſt a relaxation of the veſſels enſue, upon the application of ſuch exerciſe or motion, whereby the decay would be increaſed; whereas the contrary is, for the generality, obſerved, by thoſe who are obliged to uſe theſe means for the relief of their bodies, when labouring under a conſumption or decay: there are very few who are not relieved, in ſome degree, hereby, and ſome, I am well aſſured, have received an abſolute cure. Reaſon and experience point out to us innumerable benefits that ariſe to the body from gentle exerciſe, the moſt agreeable kind of which, to the body, is riding, either on horſeback or in a vehicle, nay, I might have added ſailing in a ſhip: theſe may be increaſed or decreaſed, in proportion to the ſtrength of the conſtitution. Riding increaſes the contractions and elaſtic force of the fibres, attenuates the viſcidity of the juices, reſolves the obſtructions of the glands and capillary veſſels, and increaſes all the ſecretions and excretions of the body. Beſides this, riding is that kind of exerciſe which puts the leaſt ſtreſs upon the weak fibres, for when we are on horſeback, or in a vehicle, we are, properly ſpeaking, rather exerciſed than exerciſing ourſelves; ſo that the motion that this occaſions, is equally applied to all parts of the body, without laying any ſtreſs upon the fibres, or, in the leaſt, fatiguing the body. And, farther, this kind of exerciſe may be ſo varied as to be beneficial to the old or young, to all conſtitutions, and, in fact, to every degree of conſumptive caſes; as the motions of the horſe, or chaiſe, may be increaſed or decreaſed at pleaſure. Several authors have recommended, and I think with very juſt reaſon, riding on horſeback to the patient, as ſoon as he perceives the firſt ſymptoms of a decay, and this into different airs; gradually increaſing his day's journey as he finds himſelf increaſe in ſtrength and ſpirits; but then I would likewiſe adviſe, at the ſame time, a regular courſe of the reſt of the non-naturals, and ſome ſmall courſe of medicine, according as the caſe requires. Again, ſailing in a ſhip will be found to have ſurprizing effects upon the conſtitution in conſumptive caſes, but I muſt confeſs, that it is extremely difficult to ac-

account for that violent vomiting, and extreme ſickneſs, anxiety, and hurry of ſpirits, that ariſe in ſome conſtitutions, from the irregular motions of a ſhip at ſea, eſpecially in bad weather. All the light that we can gather from this irregularity of motion, is, that it communicates the ſame irregular, or, in fact, a retrograde motion to the fibres, whereby the juices are irregularly diſtributed, ſome parts have a ſuper-abundant quantity, while other parts are deprived of the ſame. The ſtomach has a ſurcharge of juices, and, at the ſame time, its fibres are moſt powerfully contracted; from hence may ariſe the vomiting, or convulſive motion of the ſame. In fact, the benefits that the conſtitution receives from being thus exerciſed, are, that all the fibres of the body are wound up to a very great degree of contraction and elaſticity; the lentor and tenacity of the juices are diſſolved; the obſtructions of the ſeveral parts of the body are forced open; and if this operation is undertaken before the diſeaſe has taken a firm root in the ſame, it may be entirely removed.

PROPOSITION V.

Of the paſſions, and the means by which their regularity may be inſtrumental in reſtoring the body from decays and conſumptions.

THE paſſions are the laſt of the non-naturals that demand our enquiry; as theſe cannot exert their force 'till the reſt of the non-naturals have performed their reſpective offices; and farther, as theſe are ſeated neareſt the ſource of the intellectual faculties, and give the firſt notice to the body of any hurry, or decompoſure, that may happen to the mind. In my foregoing propoſitions on the paſſions, I have evidently demonſtrated, that their irregularities are only immoderate deſires, elevated or depreſſed above or beneath the natural ſtandard of the mind; conſequently, from hence it will appear, of what great conſequence it is, that we ſhould uſe all poſſible endeavours to rectify their irregularities, and, as much as poſſible, to prevent their violent excurſions; for the irregularities of the paſſions, *i. e.*

the over-heightening, or too much depreſſing them, will certainly forward or retard, in a great degree, the motions of the blood and juices, and, thereby, prevent the body from being properly nouriſhed. — Hence, therefore, we ſhould, as much as poſſible, uſe all our endeavours, to divert the patient with merry and innocent recreations, and to keep his paſſions as cool and ſerene as poſſible, giving him free indulgence in any little whims and fancies that he has been formerly accuſtomed to. All the gloomy and dejecting paſſions, or any thing which may give him any hurry and uneaſineſs, ſhould, at this time, be removed; and in their place ſhould be ſubſtituted ſcenes of mirth, gaiety, and chearfulneſs.

CHAP. XV.

Of the cure of waſtes and conſumptions in general.

PROPOSITION I.

There is no poſſibility of relieving a conſumption, without we, in the firſt place, reſolve the obſtructions of the ſeveral parts of the viſcera, which prevent the extreme parts of the body from being properly nouriſhed, and give riſe to the plethora and hectic fever.

THIS propoſition leads me to prove, that we ſhould never endeavour to remove the effects or ſymptoms of a conſumption, until we had effectually removed its cauſe. I ſhould have entirely omitted the ſubject of this propoſition, if I did not perceive that a great many gentlemen of the phyſical faculty were too fond of adhering to this practice. How frequently may we ſee practitioners adminiſter medicines to remove the hectic fever, allay the cough, procure reſt, and retard the colliquative diarrhæa, or night ſweats, when, at the ſame time, they neglect to order medicines to remove the cauſe of the diſeaſe? It is very obvious, that all theſe effects are cauſed by the obſtructions of the ſeveral parts of the viſcera, and that without relieving the latter, it does not appear clear to me, how it is poſſible to give any conſiderable relief to the former. Any perſon who has been experienced in ſeveral conſumptive caſes, will evidently perceive, that this aſſertion is founded on reaſon as well as experience; this is likewiſe the fundamental reaſon why the hectic fever, and theſe other violent ſymptoms that attend conſumptive caſes, are ſo difficult to remove, notwithſtanding they are treated with the beſt and moſt powerful medicines. As the reſolving of the obſtructions appears to be the firſt ſtep to be taken in order to remove the diſeaſe, I ſhall therefore examine the ſeveral indications that are moſt proper to anſwer this end; whereby this viſcidity and lentor of the fluids will be broken, the circulation will be freer, the plethora will vaniſh, and the hectic fever, and all the other violent effects will ceaſe; and, at this time, if there is a ſmall aſſiſtance given to the fibres, it will reſtore them again to their ſpringineſs and elaſticity, and, conſequently, the conſtitution to its priſtine vigour. The beſt way to know how to relieve the body of theſe obſtructions, is, to conſider, in the firſt place, how they were generated in the ſame; and, upon a critical enquiry, it will appear, that they were firſt formed by the particles of the fluids going into too cloſe contacts, from an increaſe of their attractive force; and that theſe depend upon the weakneſs and relaxation of the fibres, which ſuffer theſe particles of the blood to ſtagnate in the capillary glands and arteries, and thereby occaſion little tumours and ſwellings, which are the origin of all the violent ſymptoms that are generally obſerved to attend conſumptions and decays, when once they have taken firm root in the body. Hence, therefore, the beſt method to be taken in order to remove theſe cauſes, will be, in the firſt place, to bring the obſtructed matter into a condition of being more eaſily reſolved; and the moſt effectual means to perform this, will be by lubricating the fibres of the ſeveral parts of the viſcera, which too firmly embrace this obſtructed matter; thereby an eaſier force, or impulſe, will diſlodge it from its containing veſſels: for if we proceed to reſolve the obſtructions, by medicines which increaſe the protruding force of the circulation, before we prepare the obſtructing matter, as I have heretofore obſerved, for diſſolution, we ſhall not only increaſe the tenſion of the veſſels, and put the poor patient to pain and torture, but it is probable we may rupture the much weakened fibres, and finiſh the period of his life. — But that I may illuſtrate this ſubject in as clear a manner as poſſible, I ſhall farther obſerve, by way of example, that if we would endeavour to force a particle of matter thro' a ſmall veſſel, or tube, which is by nature too ſmall for to let it paſs through, we muſt, in the firſt place, either enlarge the cavity of the tube, or divide the particle of matter, otherwiſe the tube will be ruptured and the contained matter be extravaſated. Now, in conſumptive caſes, where the blood is thick and viſcid, it is not always poſſible to divide and attenuate the obſtructing matter, more eſpecially if there are ſchirrous ſwellings in the lungs, liver, ſpleen, or any other viſcera. Therefore the moſt rational and eaſy method, in ſuch caſes, to promote a free circulation, will be, in the firſt place, to enlarge the containing tubes, by emollients, and lubricating medicines, whereby the tenaceous matter may paſs thro' them with a leſs given force, or reſiſtance; and, 2dly, to order ſuch medicines as will attenuate, and increaſe the velocity of the blood.—This method of firſt preparing the viſcid obſtructing matter for a more eaſy diſſolution and diſcharge, is, without any diſpute, the moſt rational and ſafe method we can take in conſumptive caſes, notwithſtanding what ſome authors may ſay againſt it. The antient phyſicians mention this method of preparing the humours and fibres in moſt caſes that they have taken notice of, even before the giving of a common purge; and I am well convinced, that if *Hypocrates*, and his followers, had been acquainted with all the diſcoveries in the medicinal art, which we have in our days, they would have rendered this art much more illuſtrious, and praiſe-worthy, to ſucceeding generations, than will the phyſicians of the preſent age. — Any perſon, who is the leaſt acquainted with the laws and motions of natural bodies, will eaſily perceive the reaſon why there is a neceſſity of preparing the matter, in conſumptive caſes, before we proceed to reſolve the obſtructions, and why obſtructions, in a ſeries of relaxed veſſels, by a previous preparation of the tenaceous obſtructing matter, will require a leſſer force to reſolve them, than they would require, if the obſtructing matter, and obſtructed veſſels, were unprepared : for, in the latter, the matter that compoſes theſe obſtructions, will be put into motion with more or leſs difficulty, and change its place from a greater or leſſer impulſe, according as it is more or leſs embraced, and retained by its containing veſſels ; conſequently, when it is very firmly retained, the impetus muſt be conſiderable that will diſengage it from its place of reſidence. If therefore, we apply, too early, ſuch medicines as will increaſe the velocity and force of the blood, as preparations of mercury, ſteel, or other de-obſtruents, we ſhall eaſily perceive that the obſtructions will not give way without the greateſt difficulty; which might be entirely prevented, if we had but adminiſtered ſoftening and lubricating medicines in the firſt place. Theſe will not only ſoften and lubricate the containing veſſels, but will likewiſe eaſe and liquify, in ſome meaſure, the impacted obſtructing matter, and, conſequently, a much leſs after-force will reſolve it. But that I may ſet forth this ſubject in as clear a light as poſſible, I ſhall proceed farther to obſerve, that thoſe violent pains which ariſe in various parts of the body, in chronical diſeaſes, will not ſo readily yield to any kind of remedies, as to thoſe which are ſoftening and lubricating; nay, experience, as well as reaſon, will verify this aſſertion. For if we obſerve the paſſing off of ſtones and gravel from the kidneys, which are a ſubſtance compoſed of earthy; ſaline, and ſlimy particles, that are generated in the renal glands, from a relaxation of thoſe veſſels, and very frequently put the patient to great and ſevere torture, from the tenſion which they make on, and the ſtimulus they give to the veſſels of the parts affected; we ſhall always find that the beſt way to eaſe thoſe parts, and to give a free and entire paſſage to the gravelly ſubſtance, is, to adminiſter emollient and lubricating medicines, that relax the paſſages, and blunt the ſharp points of the gravelly matter. Thus far I have proceeded to conſider of the moſt proper method, in order to looſen the viſcid tenaceous matter that is impacted upon the body, and to prepare the obſtructions for a more ſafe and eaſy diſſolution. When we proceed upon theſe principles, and with this previous preparation, 'tis ten to one but that we gain our point, and, that, if the diſeaſe is not too firmly rivetted upon the conſtitution, the patient enjoys a laſting cure; for, when the caſe is thus, a little more force and velocity given to the blood, will eaſily diſengage the already looſened matter.

PROPOSITION II.

The force or momentum to be given to the blood, muſt be greater or leſs, according as the obſtructions are more or leſs difficult to remove.

WHEN any perſon would, therefore, judge of the intentions of nature, and of what degree of power is ſufficient to increaſe the force and velocity of the blood, to ſuch a height as may be capable of reſolving the obſtructions, he ſhould be very careful that the latter fall in, and coincide with the former; that is, he ſhould not employ a force greater than may ſuit with the intentions of nature. But, perhaps, ſome perſons may be apt to aſk, how ſhall we be able to judge of the intentions of nature, ſeeing that her ways and proceedings are ſo dark and intricate? I anſwer, by the ſtrength and elaſticity of the fibres, by the velocity of the circulation, and by the effects of the diſeaſe; nay, farther, we may always increaſe the quantity of any medicine which we give, but we cannot always relieve the violent effects which too large a doſe has already occaſioned. Too large a quantity of medicines, at this time, therefore, will only ſerve to increaſe the ſymptoms of the diſeaſe, the fever, the cough, the pain, and all the evacuations. The force, therefore, which is neceſſary to be communicated to the blood, and the manner of its communication, muſt be varied according to the different conſtitution of the patient, the different ſtages of the diſeaſe, and according to the progreſs it has made in the conſtitution. In the firſt ſtage of a conſumption, when the particles of the blood are only becoming viſcid and tenaceous, and when there are but few obſtructions formed in the ſeveral viſcera of the body, in my opinion, a ſmall degree of velocity added to the circulation, from a ſtimulus given to the fibres, will be ſufficient to reſolve any obſtructions that may now ariſe, and to diſſolve the tenacity and coheſions of the juices. In this ſtage, medicines which are compoſed of fixed ſalts, aromatic roots, gums, balſams, and ſome volatile ſalts, will be found to anſwer the end; as theſe will exert a force that is ſufficient to reſolve the obſtructions in the firſt ſtage of this diſeaſe; when the capillary veſſels are only clogged with a viſcid matter which wants to be attenuated. — But in the ſecond ſtage of the diſeaſe, where obſtructions, ſchirrous ſwellings, and tubercles, are ſtrongly rivetted upon the body, we muſt uſe all poſſible endeavours to attenuate, as well as to increaſe the motion of the blood; for except we attenuate, as well as increaſe the momentum of the blood, we drive the viſcid matter with a greater impetus upon the obſtructions, whereby they are more firmly fixed in the conſtitution, and will with greater difficulty be removed. Therefore, in this ſtage, where the obſtructions, and ſchirrous ſwellings, are ſo firmly rooted in the body, that they will not be removed by the efforts of nature, joined to a force communicated to the blood, by a ſtimulus added to the fibres, we muſt endeavour to remove them by ſuch medicines as are attenuating and diſſolving, ſuch as ſoaps, joined to preparations of ſteel and mercury, to break the coheſions and great attractive force of that fluid; which, joined to its increaſed velocity, may likewiſe increaſe the ſeparations and ſecretions of the juices, reſolve the obſtructions, and, conſequently, remove the diſeaſe, when it is capable, by art, of being removed.

PROPOSITION III.

To point out the means whereby we may diſcover when the obſtructions of the viſcera are thoroughly reſolved.

THE obſtructions of the viſcera may be ſaid to be thoroughly reſolved, when the circulation has free ingreſs and regreſs thro' its ſeveral ſeries of minute veſſels; and when the viſcid obſtructing matter is diſcharged off from the body by ſome of the excretory emunctories. And this may be diſcovered by the abatement of the ſymptoms: for when the obſtructions are reſolved, the plethora will be removed, and when the plethora is removed, the fever will immediately ceaſe, except the veſſels are very much relaxed, nay, even then, it will greatly intermit;

termit; the cough, expectoration, and pain will greatly decreaſe, and the circulation will become more free and regular. Theſe are the means by which we may diſcover when the obſtructions and ſchirrous ſwellings of the ſeveral viſcera are reſolved; for it is a well known maxim, that when the cauſe is removed, the effects muſt ceaſe of courſe, *i. e.* when the obſtructing matter is removed, the diſeaſe will vaniſh.

PROPOSITION IV.

The preparation and reſolution of the obſtructions, and the obſtructing matter, being performed, and the ſame made perfectly fuſible with the circulating maſs, to diſcharge the ſame off the body, and brace up the relaxed fibres.

WHEN the viſcid tenaceous matter is reſolved and attenuated, we muſt next proceed to diſcharge it off the body by the excretory out-lets; for if we only reſolve the obſtructions, and leave the matter in the maſs of blood, it will be moved from one organ, or bowel, to ſettle upon another, or, perhaps, if the parts from whence it was removed be much weakened and relaxed, after it has been in fuſion with the maſs of blood for ſome time, it ſettles again on the place from whence it aroſe. When the obſtructions and ſwellings therefore recede, we ſhould be careful to increaſe gradually the evacuations, to diſcharge thereby the ſuperfluous and diſſolved juices from the body; and the moſt effectual means to increaſe theſe evacuations will be by medicines, which, by their activity, and ſtimulating qualities, will be found to promote their diſcharge. — But ſometimes, perhaps, it may be abſolutely impoſſible to diſcharge this ſuperfluous quantity of diſſolved matter by the common evacuations: when the cauſe is thus, we muſt make uſe of all poſſible endeavours to drive the matter to the ſurface and extreme parts of this body. This is the moſt ſafe and eaſy means of curing decays and conſumptions, and when the cure is undertaken in time, this method will be frequently attended with ſucceſs. When the conſumption has not taken root in the body, the obſtructions are recent, and will give way to the endeavours of nature, if ſhe is aſſiſted, or ſpurred on, with antiſcorbutic and deobſtruent medicines; as, by her efforts alone, ſhe will force the tenaceous obſtructing matter from the internal viſcera, to the extreme and external parts of the body. — When this matter is, by any means, forced from the centre to the circumference, or ſurface of the body, and the fibres, by its weight and preſſure, have not been much impaired, they will prevent its falling into viſcidity and coheſions, and accumulating in any large quantities upon the extreme parts; and, conſequently, it will appear upon the body in the form of cuticular eruptions: but when the fibres, by the weight and preſſure of the obſtructing matter, ſuffer any great weakneſs, or relaxation, then will the whole maſs of fluids have a leſs degree of velocity, and their attractive force will be increaſed, whereby the matter will be accumulated in larger quantities upon the extreme parts, and, tend to excite thoſe tumours and ſwellings, which frequently appear upon the legs, arms, and, in fact, all the extreme parts of a conſumptive habit of the body. An appearance of this kind muſt be always ſalutary in conſumptive caſes, becauſe it denotes a removal of the obſtructions from the internal to the external parts of the body.—Theſe things being premiſed, *i. e.* the obſtructions prepared and removed, and the obſtructing matter being either evacuated by the common evacutions, or protruded to the ſurface of the body, we are then to proceed to uſe ſome means to ſtrengthen the much weakened and relaxed fibres, to brace up the whole vaſcular ſyſtem, and to invigorate the whole conſtitution: theſe are to be affected by medicines which are rough, auſtere, and gently aſtringent; the chief of which are preparations of ſteel and vitriol, the ſtomatic bitters, and particularly the peruvian bark. The two former will very ſafely and eaſily perform this, although they will require ſome time to do it; but the latter, whoſe particles of matter are endued with a very great attractive force, inſtantaneouſly braces up the fibres of the body, and ſtrengthens the texture of the maſs of fluids. Whenever, therefore, the body is weak, and its fibres relaxed, or its fluids diſſolving, or loſing their texture, this drug, judiciouſly adminiſtered, and occaſionally joined with ſome diuretics, will be found to give great relief, and frequently to cure. But then we muſt be very careful not to give it before the obſtructions are reſolved, and the ſuperfluous juices are detatched off the body, becauſe it will aſſuredly fix the obſtructing matter yet more firmly upon the body, and, by contracting the minute glands and fibres, cauſe a very great tenſion of the ſeveral parts, thereby exciting the moſt ſevere pains and tortures. Thus far I have proceeded to point out the general indications of the cure of conſumptions, I ſhall go on in my following chapters, to apply theſe indications to the different conſtitutions of the human body, and to the particular ſtages of the diſeaſe.

CHAP. XVI.

Of the cure of conſumptions in their firſt ſtage, attended with a lentor and viſcidity of the juices, and a ſlow periodical fever.

PROPOSITION I.

To point out the means of curing a conſumption, in its firſt ſtage, according to the nature of the conſtitution in whom it happens.

A Phyſician, therefore, when he undertakes the cure of a conſumption, ſhould be very careful that he does properly examine the ſtrength of the patient's conſtitution, all the phœnomena of the diſeaſe, and the advances it has already made; and when theſe are properly enquired into, that difficulty, which a great many perſons imagine do attend the cure of this diſeaſe, will, in a great meaſure, vaniſh. It is a general received maxim among ſome of the practitioners of me-

medicine, that when the ſymptoms of a diſeaſe are relieved, the diſeaſe will vaniſh of courſe; but, in my humble opinion, this maxim is contrary to reaſon, as well as to experience, eſpecially in the diſeaſe we are juſt now treating of; for I never yet could ſee a conſumption cured by only eaſing the ſymptoms. I have already obſerved in the preceding chapters, that the ſymptoms depend upon the diſeaſe, and not the diſeaſe upon the ſymptoms, *i. e.* the ſymptoms are cauſed by the obſtructions which give riſe to the diſeaſe, and are known to increaſe, or decreaſe, as the obſtructions and ſwellings are more or leſs intended or remitted; ſo that I ſhall proceed to point out the method of relieving the diſeaſe, by reſolving the obſtructions, rendering the veſſels duly pervious, and bracing up the weakened and relaxed fibres; and ſhall afterwards treat of the ſymptoms, and propoſe a proper method to abate their violence, that they may not interfere, whilſt we are uſing our endeavours, in order to remove the cauſe of the diſeaſe. — Therefore, in the firſt place, when a patient labours under a conſumption in its firſt ſtage, I ſhould adviſe him to remove himſelf to ſome country place, where the air is fine and clear, and to uſe gentle exerciſe, as walking, riding on horſe-back, or in a carriage, together with ſome moderate diverſions, as his ſtrength will bear; ſuch as playing at bowls, ſkittles, *&c.* his diet ſhould be light and thin, ſuch as is eaſy of digeſtion, and which will lay the leaſt ſtreſs upon the fibres. Of this ſort, I would adviſe milk of all kinds, eſpecially aſſes milk; vegetables, and vegetable food; light broths, of veal, chicken, or lamb; thin ſoftening liquors; a decoction of marſh-mallows, ſweetened with honey, may be regarded as their chief. Coffee may be uſed freely in this caſe; teas, and chocolate, ſhould be avoided, the former, becauſe they are known to relax the fibres, and the latter, becauſe it is too viſcid and tenaceous to be divided by the actions of the digeſtive powers, joined to its contained air. If the patient has a weakneſs of ſtomach, and a nauſea, it is very evident, as I have already mentioned, that the fibres of that organ are greatly relaxed, and loaded with phlegm; and when this is the caſe, we muſt adminiſter an emetic, to cleanſe that bowel, whereby we may be able to cauſe a contraction of its fibres and to aſſiſt digeſtion. — A great many eminent authors have recommended bleeding in the beginning of a conſumption, without taking notice in what caſes this evacuation is to be uſed. Whereas, it is very obvious, that bleeding will ſometimes be attended with ill conſequences in this diſeaſe, and at other times it will be found to be very beneficial; therefore I ſhall proceed to explain this affair in as clear a light as poſſible, ſuch a light as the opinions of authors and experience have furniſhed me with.—When, therefore, the conſtitution inclines to coolneſs, when the veſſels are much relaxed, and the diſeaſe appears to be of the atrophical kind, bleeding muſt be carefully avoided; for, when the caſe ſtands thus, taking away the blood, can have no other effects upon the conſtitution, than relaxing the already relaxed fibres, and thereby increaſing the coheſions and attractive force of the blood, which are already too much increaſed; and how ſalutary theſe muſt be in the cure of conſumptions, any perſon of common ſenſe may determine. But, on the other hand, when the fibres are not much relaxed, and the conſtitution warm; when the lungs are affected or ulcerated; and when violent pains affect the breaſt, with a great difficulty of breathing, bleeding is abſolutely neceſſary: but even in theſe caſes, I would have but a ſmall quantity taken off at a time, and it ſhould be repeated as often as the ſtrength of the conſtitution, and the violence of the diſeaſe ſhall require. The vomits uſed in theſe caſes ſhould be very gentle, and, if there is occaſion, they ſhould be frequently repeated: theſe not only act as evacuants, in diſburthening the primæ viæ of that load of phlegm which hangs thereon, and is the occaſion of that want of appetite and nauſea which attend this diſeaſe; but as a ſtimulus, and are very inſtrumental in reſolving the obſtructions of the ſeveral viſcera, and in bracing the fibres, which compoſe the coats of the ſtomach, to their uſual contractions and elaſticity. —— The vomits that I would recommend in theſe caſes ſhould be, *Tart. Emeti-*

cum, with a large quantity of warm water, *oximel ſcilliticum*, *pul. ipecacoanhæ*, *vin. ipecacoanhæ*, or the like. When the operation of vomiting is over, let the patient, if he is weak, or inclinable to faint, take a glaſs of ſome generous wine, or cordial water; and when his ſtomach is ſomewhat eaſed of the ſpaſms and convulſive motions occaſioned by the vomit, let him take ſuch a medicine as the following, and immediately go to bed.

℞ *Aq. menth. ſimpl. cinnam. ten. ana* ℥i; *tinct. caſt. ruſ. croci. ſpt. lavend. ana* ʒi; *ſal. diuretic.* ʒſs. *philon. lond.* ℈i; *ſpt. nitri. dul. gut.* xx; *ſyr. cort. aurant.* ℥ſs, *M. f. hauſt.*

Purging medicines muſt be uſed with great caution in theſe caſes, becauſe they greatly decreaſe the ſtrength; as this diſcharge is generally made from the blood, and, conſequently, muſt greatly increaſe the decay. Theſe medicines, therefore, ſhould be entirely omitted, except there is an urgent neceſſity for their uſe, if ſo, I would adviſe only ſuch as have rhubard for their baſis, or ſuch as the following.

℞ *Mannæ opt.* ℥ſs; *infuſ. amara ſimpl.* ℥iſs; *M. deinde adde. pul. rhab. opt. ſal. diuretic. ana* ℈i, *M. f. hauſt. cathartic.*

℞ *Sal. abſynth.* ʒſs; *ſucc. limon.* ʒvi; *M. deinde adde. aq. menthæ ſimpli. cinnam. ten. ana* ℥i; *tinct. ſpecies aromat. gut.* xxx; *mel. roſ.* ʒiſs *M. f. hauſt. hora ſomni poſt cathar. ſumend.*

After we have, by gentle vomits, and purging medicines, if they are judged neceſſary, cleanſed the *primæ viæ*, we are next to put the patient on a courſe of ſuch medicines as will dilute and diſſolve the viſcidity of the fluids, and reſolve any obſtructions which may be formed in the liver, lungs, ſpleen, or any other viſcera; and as theſe cannot be but recently formed, ſo a ſmall degree of velocity added to the circulation, will be capable of reſolving them.

℞ *Pil. aromat. gummoſſæ ana* ʒij; *balſ. peruv. q. ſ. M. f. pil. mediocreſ. capiat* N°. 5. *mane et veſperi. ſuperbibend. aq. ſpadienſ.* ℥iv.

℞ *Infuſ. amara ſimpl.* ℔i; *tinct. amara.* ℥ij; *ſal. diuretic.* ʒij; *elix. vitrioli mynch.* ʒiſs;

ʒiſs ; *ſyr. cort. aurant.* ℥iſs, *M. capiat. cochl.* iv. *horâ* 11*mâ. mat. et* 4*tâ pomeridianæ.*

The patient ſhould be very careful to uſe no malt nor ſprituous liquors, of any kind ; and in their room ſhould make uſe of ſuch liquors as are thin and diluting ; always chuſing thoſe that are agreeable to his palate. If he is diſturbed at night, or cannot ſleep with eaſe and tranquility, he ſhould take ſuch as the following anodine.

℞ *Philon. Lond.* ℈i ; *ſal. nitri grs.* xvi ; *conſ. fruc. cynoſb. q. ſ. M. f. bol. hora ſomni ſumend. ſuperbibend. hauſt. theæ ſalviæ.*

When, by any medicines of the foregoing kind, the coheſions and viſcidity of the fluids are diſſolved, the obſtructions removed, and the obſtructing matter either carried off by an increaſe of ſome of the natural evacuations, or lodged upon the ſurface of the body, in the form of eruptions, ſpots, tumours, or little ſwellings ; it will then be neceſſary for us to order ſuch medicines as will reſtore the ſpringineſs and elaſticity of the fibres, and brace up the whole vaſcular ſyſtem ; and to anſwer this purpoſe, I know of none better than the following.

℞ *Decoct. cort. peruv.* ℥viij; *balſ. tolu,* ʒiij; *coq. deinde adde. extract. cort. peruv. extract. gentianæ ana* ʒi; *ſal diuretic* ʒiſs; *ſyr. cort. aurant.* ℥iſs; *M capiat cochl.* iv. *ter vel quaterve quotidie.*

Medicines of this kind will not only reſtore the contractions and elaſticity of the fibres, and brace up the whole vaſcular ſyſtem, but they will likewiſe cleanſe the glands of any viſcid or tenaceous matter that may obſtruct them, and contract their orifices, even more than is conſiſtent with a free circulation, or the performance of the ſeveral animal functions.

CHAP.

CHAP. XVII.

Of the cure of conſumptions in their ſecond ſtage, attended with obſtructions of the ſeveral viſcera, and a hectic fever.

PROPOSITION I.

To prepare the body for the attenuation and expulſion of the viſcid obſtructing matter.

WHEN a phyſician is not called time enough to adminiſter medicines in the firſt ſtage of the diſeaſe, which is very frequently the caſe, by reaſon of the ſlow and inſenſible progreſs that it makes, and the little diſturbance it creates to the patient at its firſt onſet, the method recommended in the preceding chapter, will not be found ſufficient to remove the cauſe thereof, as will appear evident from what I ſhall hereafter offer upon the ſame ſubject. When any perſon makes a critical enquiry into the nature of things, he will plainly perceive that this ſtage of a conſumption is only a change of the ſymptoms, from the ſame immediate cauſe having made a greater progreſs upon the conſtitution. In this ſtage the obſtructions faſten more firmly upon the conſtitution; and immediately give riſe to ſcrophulous or ſchirrous tumours, tubercles, and ſwellings, which are now ſeen in the lungs, liver, ſpleen, meſentery, and other glands: theſe cauſe a plethora in the yet pervious veſſels, and a hectic fever is the conſequence thereof. The cure of a conſumption in this ſtage will be much more difficult, becauſe of the weakneſs of the fibres, and the great quantity of obſtructions and ſchirrous ſwellings which are thereby generated in the body; both which, perhaps, were cauſed by an irregularity in the uſe of the non-naturals, or a way of living highly contrary to the courſe of nature. As the veſſels are ſo much weakened, and the obſtructions and ſchirrous ſwellings ſo firmly fixed upon the ſeveral viſcera of the body, it will be highly neceſſary that we uſe our utmoſt endeavours to ſoften and looſen the obſtructing matter, pent up in the ſeveral viſcera, before we attempt to increaſe the velocity and protruding force of the blood, to ſuch a degree as may be capable of removing the obſtructions, and the advances they have made; otherwiſe we may increaſe the ſame, by forcing a great quantity of viſcid tenaceous matter on the glands, and rupture the minute veſſels, particularly thoſe of the lungs; which will be the means of finiſhing the period of the poor patient's life. Hence, therefore, after we have regulated a courſe of the non-naturals, proper for the conſtitution and ſtage of the diſeaſe, our next ſtudy ſhould be to order proper remedies to anſwer this firſt intention, *i. e.* to ſoften and looſen the obſtructing matter; but even here it will be highly neceſſary for us to cleanſe the firſt paſſages. If an extreme nauſea affect the ſtomach, or even if the patient has only a loſs of appetite, I would immediately adviſe a gentle vomit, but then it ſhould be carefully followed, and not too much encouraged with freſh ſupplies of diluting liquors. I prefer the following emetic before all others in theſe caſes.

℞ *Vin. ipecacoanh.* ℥ij; *ſpt. ſal. vol. aromat.* ʒj; *M. f. hauſt. emetic.*

I would adviſe this emetic to be worked off with about two or three quarts of a mixture, made of the infuſion of camomile flowers, two parts, and Madeira wine one part. This will be found to anſwer all the good ends of a vomit; but will not be attended with its ill effects; with that faintneſs, anxiety, and reaching, which generally follow the operation of a common emetic. — The *primæ viæ* being cleanſed, we are next to order ſome medicines to endeavour to ſoften and lubricate the obſtructing matter; and to anſwer which purpoſe, I know of none better than the following.

℞ *Ol. amygd. dul. recent. ſyr. capillor. ven, ana* ℥ij; *oxymel ſcillit.* ℥ſs; *balſ. tolu. (in vitel. ov. ſol.)* ʒiij; *ſacch. alb.* ʒij; *M. f. linct. capiat cochl.* i. *quarta quaque hora. ſuperbibend. hauſt. decoct. ſeq.*

℞ *Decoct. pectorale commun.* ℔i; *ſpt. nitri dul.* ʒij; *ſyr. balſ.* ℥ij; *M.*

℞ *Sperm. ceti (in q. ſ. vitel ov. ſolut.)* ʒi; *laud. liq. gut.* xvi; *ſpt. nitri dul. gut.* xx. *ol. lini. S. I.* ʒvi; *M. hora ſomni ſumend.*

PROPOSITION II.

To reſolve the obſtructions, and to force off the obſtructing matter, either by the natural evacuations, or on the ſurface of the body.

THE medicines, ordered in our laſt propoſition, when plentifully exhibited, will, in a ſmall interval of time, ſoften the obſtructing matter, and take off the tenſion of the obſtructed glands; after which the following will more eaſily effect a reſolution of the obſtructions, make the obſtructing matter duly fluxile with the maſs of fluids, and either prepare it to be detached off by ſome of the natural evacuations, or to be protruded to the ſurface of the body.

℞ *Cinnab. nat. gum. myrrh. ana* ʒij; *balſ. peruv. q. ſ. M. f. pil. mediocres. capiat* N°. iv. *ter. vel quaterve quotidie, ſuperbibend. hauſt. ſeq.*

℞ *Balſ. tolu. (in ov. ſol.)* ʒi ; *flores benzoin grs.* viii ; *ſal. vol. viper.* ʒſs ; *aq. menth. ſimpl.* ℥ij ; *ſyr. cort. aurant.* ʒij ; *M. f. hauſt.*

A courſe of theſe medicines are to be continued until we have ſome appearance of the obſtructions being reſolved, which will be, when the cough abates, the hectic fever intermits, and, in fact, when there is a total ceſſation of all the other violent ſymptoms.—Theſe medicines will, in the firſt place, ſeem rather to increaſe the fever, and all the other ſymptoms, than to abate them, and it is neceſſary they ſhould do ſo, ſince all we intend from their operation, is, to attenuate, and to increaſe the velocity of the blood, whereby it may be protruded with a greater force and weight upon the obſtructed parts ; otherwiſe the obſtructions could by no means be reſolved. This is one of the chief reaſons why a great number of phyſicians do ſo very rarely ſucceed in the cure of this diſeaſe ; becauſe they are afraid of ordering ſuch medicines as are capable of removing the cauſe of the diſeaſe, for fear of exaſperating the ſymptoms, for a little time. Every doſe of theſe medicines increaſes the violence of the ſymptoms as long as its effects laſt upon the blood, which cannot be above five or ſix hours; but when they are judiciouſly given, they will be found to give great relief to the body: and if the extreme parts, as the legs, feet, arms, and places where the obſtructions may be judged to be formed, were fomented with a fomentation made of the aromatic roots and flowers, and afterwards the parts rubbed gently with flannels, or a fleſh bruſh, it would greatly aſſiſt their operation; I have known ſurprizing cures done by this means. The common methods of practice in theſe caſes, are to order balſamic medicines, the abſorbent powders, oily linctus's, and aſſes milk, but, how theſe can remove the cauſe of the diſeaſe, or, in fact, do any thing more than lubricate the veſſels and appeaſe the ſymptoms, I cannot pretend to determine. — The lungs in this ſtage is generally obſtructed, and the patient has a ſhort tickling cough, which is very troubleſome, eſpecially towards evening; in this caſe I would order the following draught.

℞ *Sperm. ceti (in q. ſ. vitel. ov. ſol.)* ℥ſs; *flores benzoin grs.* xii; *ſpt. nitri. dul. gut.* xxx. *tinct. thebaic. gut.* xvii. *ſyr. balſ.* ℥ij; *M. f. hauſt. anodin. hora ſomni ſumend.*

After the obſtructions are reſolved, and the obſtructing matter made fuſible with the maſs of fluids, it will be neceſſary to order ſome gentle diuretics, to move the evacuation by urine, if nature does not point out any other means, as that ſeems to be the moſt natural means to carry off the viſcid obſtructing matter, and dreggy contents of the blood: but if this matter is thrown off on the ſurface of the ſkin, we ought to order immediately ſome gentle detergent, to prevent it from falling again into viſcidity and coheſions, and ſettling upon any principal part, till nature gradually gets the better of it, and forces it off through the cutaneous paſſages.

PROPOSITION III.

To reſtore the fibres to their former ſpringineſs, and brace up the whole vaſcular ſyſtem.

AFTER the obſtructions are removed, and the obſtructing matter evacuated, by the urinary paſſages, or by any of the other natural evacuations, it will be proper to order a courſe of medicines to increaſe the contractions and elaſticity of the fibres, and to reſtore the ſolid parts to their former ſtate; although we ſhould be very careful how we order medicines to anſwer this intention at this time; for if we adminiſter aſtringents to brace up the vaſcular ſyſtem, and there ſhould remain thereon any of the viſcid obſtructing matter, we ſhould rather increaſe the malady than cure it. When we have any reaſon to imagine that the caſe ſtands thus, we ſhould be careful to join detergents to our aſtringents, ſuch as the following may not be improper.

℞ *Decoct. cort. peruv.* ℥ij; *extract. gentian.* ʒſs; *vin. antimoniale (Huxham)* ʒi; *ſyr.*

ſyr. cort. aurant. ℥ſs; *M. f. hauſt. ter. vel. quaterve quotidie ſumend.*

During the uſe of theſe medicines, the patient ſhould drink the ſpaw, or other chalybeat waters, which will be found to be very beneficial in thoſe caſes.

CHAP. XVIII.

Of the cure of a conſumption in its laſt ſtage, attended with an ulcer in the lungs.

PROPOSITION I.

There is a poſſibility of curing an ulcer of the lungs, when the conſtitution is not too much weakened and emaciated.

I Should not have attempted to contradict the opinions of the moſt eminent authors on this head, who aſſert that there is no poſſibility of curing an ulcer of the lungs, if I had not been guided by experience. I am well convinced that theſe authors, more eſpecially thoſe of antient date, have determined theſe diſeaſes incurable, which a more rational theory and experience have convinced us are curable. I have lately ſeen three examples of this kind, wherein an ulcer of the lungs hath been cured: but, perhaps, ſome perſons may be apt to ſay, that I could not be certain that the lungs were ulcerated; but, in anſwer to this, I muſt obſerve, that the patients expectorated large quantities of putrid matter, and had all the other ſymptoms which attend an ulcer of that organ; nay, one of them expectorated near two ounces of this matter at a time; therefore, as experience hath taught me that there is a poſſibility of curing an ulcer of the lungs, let me now proceed to endeavour to prove the ſame by theory. It is moſt certainly in the power of medicine to prevent obſtructions of the lungs from turning to vomicaes, abſceſſes, or ulcers, if aſſiſtance is demanded in time; a perſon who denies this, muſt deny that we have it in our power to cure a peripneumony or a pleuriſy; for it is very obvious, that the former of theſe does always ariſe from an obſtruction of the lungs, created by ſtagnant juices, which lodge on their fine veſiculary ſubſtance: hence proceeds a rupture of thoſe minute veſſels, and a diſcharge of purulent matter, which is the ſureſt ſign that the lungs are affected. But before I proceed any farther to prove the poſſibility of curing ulcers of the lungs, I muſt obſerve that thoſe ſhould not be of any long ſtanding; for when the ulcers are old, and their parts grown hard and callous, they muſt certainly be paſt all cure; and, therefore, the ſubject of this chapter hath no relation but to a recent phthiſis, which ariſes from an abuſe of the non-naturals, great colds taken, or from a peripneumony, or pleuriſy, ill cured. When the patient is hereditarily diſpoſed to it, or when there are, at the ſame time, tubercles, and ſchirrous ſwellings, affecting the other parts of the body, we ought to regard the caſe as incurable. Again, on the other hand, there are ſome perſons who abſolutely aſſert, that there is a poſſibility of curing an ulcer of the lungs, al-

although it is of ever ſo long ſtanding, or attended with ever ſo bad effects. But the perſons who thus aſſert, muſt, at the ſame time, certainly labour under a diſeaſe of a much more noble organ of the body. For, in my opinion, medicines that are capable of removing the oſtructions of the ſeveral viſcera, will, at this time, increaſe the ulcer of the lungs, and raiſe all the other ſymptoms; therefore a power that is neceſſary to reſolve theſe obſtructions, will, at the ſame time, deſtroy the texture of the lungs. When, therefore, an ulcer of the lungs may poſſibly be reſtored, according to my opinion, and ſmall experience, its indications of cure will be as follows. Firſt, that we uſe all poſſible endeavours to remove the hectic fever, to leſſen the large diſcharge of matter continually expectorated from the lungs, to appeaſe the evacuations, and to reduce all the diſcharges of the body to their natural ſtandard. 2*dly*, That we endeavour to make a revulſion of the matter which falls on, and ulcerates the lungs. 3*dly*, that we endeavour to diſſolve the lentor and viſcidity of the blood, and thereby reſtore its natural balſamic quality, which hath been greatly impaired by the violence of the diſeaſe. *4thly*, That we take care to order the moſt fine alimentary nouriſhment, in fact, ſuch as may lay the leaſt weight upon the fibres for its diviſion. *5thly*, That we order the patient ſome gentle exerciſe, as his ſtrength will bear, to inforce the proper diſtribution of the nouriſhment, according as the exigency of the caſe ſhall require. And, *laſtly*, having by this means endeavoured to invigorate the Conſtitution, that we uſe ſome means to diſpoſe the ulcer to heal, and to brace up the whole vaſcular ſyſtem. —— Theſe are the ſeveral indications on which I ground the method that I purſue for the curing an ulcer of the lungs; and if I ſupport theſe reaſonings by experience, I hope, that at leaſt I ſhall be pardoned for being ſo daring as to contradict the general received practice.

PROPOSITION II.

To point out a method of relieving a conſumption with an ulcer of the lungs, according to the preceding indications, which have been drawn from experience and matters of fact.

FIRST, then, we are to allay the hectic fever, night ſweats, and leſſen the quantity of the expectorated matter; theſe I have ſeveral times performed by the following means, and I make no doubt, but that, if they were properly altered according to the nature of the conſtitution, and the ſtrength of the patient, they might, very frequently, be uſed with ſucceſs.

℞ *Balſ. tolu. (in vitel ov. ſol.)* ʒſs; *ſal. nitri* ℈i; *Aq. menth. ſimp.* ℥iſs; *elix. vitrioli mynch. gutt.* xl; *ſyr. cort. aurant.* ʒij *M. f. hauſt.* —— *Sexta quaque hora ſumend.* — *Superbibend. hauſt. theæ menthæ.*

℞ *Sperm. ceti. (in vitel ov. ſol.)* ʒſs. *Aq. pulegii.* ℥iſs; *ſpt. nitri. dul.* ʒi; *tinct. thebaic. gut.* xx; *ſyr. balſ.* ʒiij; *M. f. hauſt. anodin. hora ſomni ſumend.*

The ſurprizing effects that are produced by the *nitri et elix. vitrioli*, in theſe caſes, are not to be parallelled; they allay the hectic fever and night ſweats, after three or four days taking; they eaſe the cough, and leſſen the quantity of the expectorated matter; they remove theſe burning heats which ariſe in the body, eſpecially in the palms of the hands, after eating of a full meal. If there is a diarrhæa, the quantity of the nitre and vitriol muſt be decreaſed, and I would adviſe the *decoctum fracaſtorii fullerii, cum aq. menth. ſpt.* to be occaſionally given. 2*dly*, To make a revulſion from the lungs, the patient ſhould have all the extreme parts of his body, his thighs, legs, feet, arms, and hands, well fomented with a fomentation made of aromatic roots, herbs, and flowers, and afterwards thoſe parts ſhould be well rubbed with flannels, or gently with a fleſh bruſh; this courſe ſhould be repeated, at leaſt, three times every day. If this method ſhould not ſucceed, I would adviſe perpetual bliſters to be applied to the calves of the legs. 3*dly*, To diſſolve the lentor and viſcidity of the blood, and to allay its inteſtine heat, no method will anſwer better than giving of nitre as before directed, eſpecially if we occaſionally add volatile ſalt of vipers, as I have in my preceding chapter obſerved; or, if the *elix. vitrioli* ſhould be too ſharp for the ſtomach, ſubſtitute the ſalt of vipers in its place. Whenever the blood has a proper fluidity and degree of motion, it immediately acquires a balſamic quality, which, without theſe, it is deſtitute of. 4*thly*, To nouriſh the body with ſuch light food as ſhall lay but very little weight upon the fibres, requires ſome art. Many of the authors who have written upon this diſeaſe, have obſerved, that the hectic fever, and moſt of the other ſymptoms thereof, are greatly exaſperated after eating a full meal, or aliments of hard digeſtion. But I muſt confeſs, I have not ſeen any of them who have taken the leaſt pains to account for the cauſe of this difficulty, nor to point out a means by which it may be removed; whereas, according to the nature of things, it does not appear difficult to do both the one and the other. It is evident that we may, with ſome degree of certainty, expect a return of the fever, and of the other violent ſymptoms immediately after a full meal, or after eating meats of hard digeſtion; conſequently, the aliments, by laying a greater weight upon the ſolids, muſt be the cauſe of thoſe ſymptoms; and when we would endeavour to remove thoſe effects, we ſhould reduce the patient's diet to the ſmalleſt quantity it is poſſible for him to live on, ſo as to maintain properly the operations of nature; and this ſhould be of the moſt ſoft and light food. Of this kind, I allow woman's breaſt milk, about one pint and an half in twenty-four hours; aſſes milk; and ſometimes cow's milk, but the latter of thoſe muſt be mixed with a little conſerve of roſes, or ſome of the abſorbent powders, to prevent its curding and turning ſour upon the ſtomach: he may take about one half pint of theſe every ſix hours. Viper broth, and juice of baked turneps, are likewiſe exceeding good in theſe caſes, given in the ſame quantity; the latter of theſe is very juſtly eſteemed to be an exceeding good analeptic, or reſtorative. From this ſlight attenuating diet, there can ariſe but a very ſmall quantity of ſuperfluous moiſture to increaſe the evacuations; it is wholly chyle, and will lay but very little weight upon the ſolids to convert it all into pure nouriſhment. That a perſon who labours under a conſumption, attended with an ulcer of the lungs, ſhould be thus carefully fed, ſeems agreeable to reaſon and the nature of diſeaſes. We are all very ready to recommend a thin attenuating diet to perſons labouring under acute diſeaſes, and we plainly perceive, that it is aſſiſting in abating the ſeverity of the ſymptoms, eſpecially of thoſe burning heats, violent thirſt, inflammations, phrenſies, and deliriums, which are the chief effects of acute diſeaſes. It is very obvious, that a much leſs quantity of aliments is ſufficient to feed nature in acute diſeaſes, or even when the body is in health, than we are aware of; but yet in conſumptive caſes, we muſt cram the much weakened machine with a ſuperfluous quantity of aliments, even till the ſtomach loaths all kinds of the ſame. Why we ſhould lay ſuch a redundant load upon the enervated and emaciated body, I cannot pretend to determine. In a phthiſis, therefore, I think it moſt rational that we ſhould keep the patient upon a ſmall pittance, till the fibres of the body have time to contract themſelves, to digeſt off that load of viſcid matter which hangs upon them; which will certainly be increaſed by cramming the body with ſtrong broths, ſoups, and jellies, which are generally ordered in theſe caſes. We ſhould likewiſe farther conſider that the quantity of aliments, which have been juſt now ordered, is ſufficient to moiſten, lubricate, and nouriſh the fibres, without laying any preſſure upon them; and, during the interval, that the patient is making uſe of this thin attenuating diet, the ſolids are recovering their contractions, and exerting their utmoſt efforts to remove the obſtructions, and promote a free circulation. Theſe aliments will likewiſe increaſe the fluidity and balſamic quality of the fluids, upon which the cure of all ulcers does in a great meaſure depend. *5thly*, That we order the patient ſome gentle exerciſe, as his ſtrength will bear, to inforce the proper diſtribution of the nouriſhment, and to aſſiſt the contractions of the fibres. To anſwer this purpoſe, I know of none better than that of being carried in a chaiſe or a coach; and, if the patient is much emaciated, in a ſedan chair. *6thly*, We are to uſe ſome means to deterge and heal the ulcer, and to brace up the whole vaſcular ſyſtem. The medicines which I have uſed to anſwer theſe intentions, are as follows, and which, I make no doubt, will always be found ſalutary in theſe caſes.

℞ *Gum. ammon. oliban. ana* ʒij; *aq. pulegii* ℥vi *M. deinde adde. ſpt. nitri. dul.* ʒi; *ſyr. balſ.* ℥i *M. capiat. cochl.* ij *quart. quaque hora, ſuperbibend. vin. viperin.* ℥iij.

The juice of water creaſſes, taken a ſpoonful at a time, three or four times every day, will be found to be of great ſervice in theſe caſes, and I ſhould likewiſe order the patient to receive into his lungs, with his breath, the vapour of a decoction of the aromatic and aſtringent plants, having ſeveral times ſeen this prove very ſalutary in the cure of a phthiſis. After we perceive the quantity of the expectorated matter to leſſen, the ſymptoms to abate, and the ulcer to be diſpoſed for healing, the patient ſhould take ſome medicines to brace up the vaſcular ſyſtem, and, if I may be allowed the expreſſion, to conſolidate the ruptured fibres of the lungs; for which I know of none that are better than the following; increaſing, or decreaſing, the doſe, according to the ſtrength of the conſtitution, and the nature of the caſe.

℞ *Gum. oliban.* ℥ſs; *aq. font.* ℥vj; *M. deinde adde. tinct. cort. peruv. opt.* ℥ij; *extract. gentianæ* ʒiſs *ſpt. nitri. dul.* ʒiſs *ſyr. cort. aurant.* ℥i; *M. capiat. cochl.* iij *ter. vel. quaterve quotidie, ſuperbibend. hauſt. ſerum lactis.*

But farther the only point which we have yet to determine, is, whether or no thoſe methods are of proper efficacy to eradicate an ulcer of the lungs, and to conſolidate their broken fibres? I avow that I have already experienced the good effects of them in ulcerated lungs, and muſt confeſs that, in my opinion, they may be ſucceſsfully uſed in any recent phthiſis; except it is complicated with other diſeaſes.

CHAP.

CHAP. XIX.

Of remedying the ſymptoms that attend decays, and haſten on the conſumption and the death of the patient.

PROPOSITION I.

To point out the ſymptoms which are moſt dangerous in theſe caſes, the effects which are produced thereby, and the manner of their haſtening on the diſeaſe.

WE are frequently obſtructed in the general cure of decays and conſumptions by violent ſymptoms, which haſten on the diſeaſe, notwithſtanding the methods which we have laid down for its relief, and if they are not timely remedied, they may be paſt all hopes of a cure before we are able to remove their firſt cauſe. The ſymptoms which, in theſe caſes, are attended with the greateſt danger, and which haſten on the de-

decay, are the violent hectic fever and night ſweats, the colliquative diarrhæa, the cough and ſpitting of blood, the hæmorrhages, the flux of urine, the gleets in the Tabes Dorſales, and the reſtleſſneſs. The immediate cauſe of all theſe ſymptoms is a great weakneſs and relaxation of the fibres of the parts leading to the evacuations, whereby theſe parts are not capable of giving a proper reſiſtance to the protruding force of the heart and arteries, which protrude the fluids with a more than common force againſt them; eſpecially when they are excited by the heat of the hectic fever: and the reaſon thoſe ſymptoms are ſo difficult of cure, is, becauſe thoſe parts cannot be inſtantaneouſly ſo well reſtored as to make a proper reſiſtance to the impulſes of the fluids; nay, if we ſhould chance, by the ordering of the moſt generous medicines, to ſtop any of the evacuations, it is ten to one, but that the matter of the diſcharge thus ſuppreſſed, will be forced off on the other evacuations; therefore, it will be abſolutely impoſſible to cure the ſymptoms of this diſeaſe, till we have cured the diſeaſe itſelf. All that we can do in theſe caſes, will be to palliate the ſymptoms until we have removed the cauſe of the diſeaſe, and afterwards they will be removed with the greateſt eaſe and facility.

PROPOSITION II.

Of the method of relieving and palliating the hectic fever, and night ſweats, which generally accompany this diſeaſe.

IT would be in vain for me to attempt to aſſign again the cauſe why patients ſo very rarely meet with an abſolute cure in theſe caſes, ſince it is what I have already ſet forth in my preceding chapters; but I ſhall immediately proceed to point out a means for their relief. But, before we can expect to gain any conſiderable relief for theſe ſymptoms, we muſt allay the inteſtine motion and heat of the blood, whereby its violent impulſes againſt the relaxed veſſels will be decreaſed, and afterwards the palliation of theſe ſymptoms will be eaſily procured by ſuch medicines as will reſtore the ſpringineſs and elaſticity of the fibres which compoſe the cutaneous glands. To remove the heat and inteſtine motion of the blood, therefore, I know of no better method, than the ordering ſalt nitre and elixir of vitriol, in ſuch manner as I have already obſerved, or as follows.

℞ *Balſ. tolu. (in vitel. ov. ſol.)* ʒſs; *ſpt. nitri. dul. elix. vitrioli mynch. ana gut.* xl. *aq. menth. ſimpl.* ℥iſs; *ſyr. cort. aurant.* ℥ſs; *M. f. hauſt. ſexta quaque hora ſumend. ſuperbibend. theæ ſalviæ* ℥iv.

℞ *Aq. alex. ſimpl,* ℥iſs; *ſal. vol. ſuccin. grs.* xii; *ſal. nitri. grs.* vii; *philon. Lond.* ℈i; *tinct. croci.* ʒi; *ſyr. balſ.* ℥ſs; *M. f. hauſt. anodin. omni nocte hora ſomni ſumendus.*

After the heats and hectic fever, are, by this means, allayed, we ſhould order immediately ſome medicines to cauſe a contraction of the capillary veſſels upon the ſurface of the body, and to reduce the cold clammy ſweats to a fine warm perſpiration, for which ſeveral purpoſes the following remedies will be found to be very efficacious.

℞ *Decoct. cort. peruv.* lbſs; *gum. ammon. (in aq. Pulegii* ℥ij *ſol.)* ʒij; *tinct. cort. peruv.* ℥iſs; *ſyr. cort. aurant.* ℥i; *M. f. mixtura capiat. coch.* iij. *quarta quaque hora ſuperbibend. hauſt. ſerum lactis.*

We ſhould be always careful to obſerve, that if the ſuppreſſion of this, or, of any other evacuation, increaſes either of the quantity of the others, we muſt immediately order ſuch medicines as are ordered for the relief of that diſcharge: This will frequently be the caſe, for, as I have already often obſerved, it is not only very difficult, nay almoſt impoſſible, to reduce the evacuations to their natural ſtandard, but it is very unſafe ſo to do, before we have reſolved the obſtructions of the ſeveral viſcera, and rendered the veſſels duly pervious.

PROPOSITION III.

Of the colliquative diarrhæa which attends the diſeaſe, and the method for palliating of the ſame.

THE diarrhæa or looſeneſs, which accompanies this diſeaſe, does greatly incommode the poor patient, counteracts the force of our medicines, and haſtens on the diſeaſe, more eſpecially if the flux is violent, and immediately ſupplied from the blood, by means of the glands, which ſeparate juices from that fluid for the moiſture and nouriſhment of the inteſtines. The palliating of this ſymptom requires the anſwering of two intentions. *Firſt*, To gently evacuate the primæ viæ and its glands of the load of viſcid matter which hangs thereon, and occaſions their relaxation; and 2*dly*, to brace up the fibres of the inteſtines, and reſtore them to their priſtine ſpringineſs and elaſticity. Therefore, to anſwer the firſt intention, if the patient is not too much emaciated, I would give him a gentle emetic, ſuch as the following.

℞ *Pul. ipecacoanh. grs.* viij; *Aq. alex. ſimpl.* ℥i. *ſpir. ſal. vol. aromat. gtt.* xl; *oxymel. ſcillit.* ʒi; *M. f. hauſt. emetic. hora quinta pomeridiana ſumend.*

This ſhould be worked off with ſmall draughts of water-gruel, mixed with about one tenth part of Madeira wine; and in the evening after the operation of the vomit, I would recommend a ſmall doſe of conf. damocrat. cum philon. Lond. But if the patient is weak, and cannot bear a gentle puke, the following medicines will be admirable to palliate the diſcharge.

℞ *Pul. rhab. opt. toſt. grs.* xv. *vel* ℈i; *ol. cinnam. gut.* j; *balſ. tolu. pul. philon. Lond. ana* ℈ſs; *ſyr. caryoph. rub. q. s. M. f. bol. ſtatim ſumend.*

℞ *Decoct. fracaſtorii fullerii* ℥x; *balſ. tolu.* ʒiij; *coq. deinde adde aq. menthæ ſp.* ℥iſs; *M. capiat. cochl.* iij. *tertia vel quarta quaque hora.*

This is an excellent good medicine in theſe caſes, and ſeldom fails to ſtrengthen the bowels and palliate the flux, at leaſt as much as is ſufficient to go on with the general cure of the diſeaſe. During this interval, he ſhould uſe but a ſmall quantity of aliments, and of thoſe that are thickening, and that will reſtore the juices to ſome conſiſtance. It will generally be obſerved, That the looſe ſtools do greatly increaſe about four hours after a full meal, i. e. about the time the veſſels are filled with new chyle; conſequently, the leſs he eats the better, if it is ſufficient to keep the animal powers in motion; let his drink be the decoctum album, or red port wine boiled with cinnamon and red roſe leaves, and theſe in ſmall quantities, for large draughts of any liquids, but eſpecially ſuch as are cold and watry, will moſt certainly increaſe the flux, and yet more relax the fibres of the inteſtinal tube.

PROPOSITION IV.

To point out a means to relieve the cough, and ſpitting of blood, ſo very troubleſome in conſumptive caſes.

UPON our reducing the evacuations to their natural ſtandard, in conſumptive conſtitutions, or, indeed, when the trochial veſſels are ſo much weakened, and relaxed, that they are not capable of giving a proper reſiſtance to the impulſes of the fluids, nature, being unable to force a paſſage by any of the common evacuations, frequently diſcharges a large quantity of the ſuperfluous juices upon the reſpiratory veſſels, which hangs on, and irritates, the bronchial glands, and excites a cough, that is very troubleſome and diſturbing, eſpecially towards evening, and which will frequently be attended with a ſpitting of blood; the violence of the cough rupturing the tender minute veſſels of the lungs; therefore we ſhould be very careful how we proceed too early to ſupprefs the natural diſcharges, for the ſuperfluous humours will either paſs off by the lungs, and excite a ſpitting of blood, retreat upon the body, and increaſe the hectic fever, or they will burſt out at ſome of the already ſuppreſſed evacuations. The method of curing thoſe ſymptoms will be very different, according to the different quality of the expectorated matter, and according to the different conſtitutions in whom they happen. When, therefore, the expectorated matter is thick and viſcid, and hangs upon the minute veſſels, we ſhould uſe all poſſible endeavours to attenuate the ſame, and prepare it for expectoration, to heal the ruptured parts, and to excite the fibres of the bronchial veſſels to contraction, and thereby to prevent a return of the ſame; for which purpoſe ſuch as the following courſe of medicines will be very efficacious.

℞ *Bal. tolu. (in vitel. ov. ſol.)* ʒj; *flores benzoin. grs.* x; *ſal. vol. ſuccin. grs.* viij; *Aq. alex. ſimpl.* ℥iſs; *camphora (in ſpir. vin. ſol.) grs.* iv; *ſpir. nitri. dul. gut.* xx; *ſyr. balſ.* ℥ſs;
M. f.

M. f. hauſt. ſexta quaque hora ſumend. ſuperbibend. hauſt. decoct. pectorale comm.

The quantity of thoſe medicines ſhould be increaſed or decreaſed, according to the conſtitution of the patient. It would likewiſe be adviſeable to apply an epiſpaſtic plaiſter between the ſhoulders; but I ſhould order it to be covered with powdered camphire before it is laid on, leſt the flies ſhould excite a large urinary diſcharge, which they are very apt to do in weak and relaxed habits of body. If the cough is very troubleſome towards evening, order ſuch as the following draught.

℞ *Sperm. ceti (in vitel. ov. ſol.)* ʒj; *flores benzoin. grs.* viij; *ſpir. nitri dulc. gtt.* xxv; *elix. paregoric* ʒi; *aq. menth. ſimpl.* ℥ij; *ſyr. balſ.* ʒiij; *M. f. hauſt. anodin. hora ſomni ſumend.*

But when the expectorated matter is more thin and irritating, we muſt firſt proceed to thicken the phlegm, and abate its irritating quality, for which I know no better means than the uſe of the medicines which I am now going to order.

℞ *Conſ. fruc. cynoſb.* ℥ij; *pul. é tragacanth. com.* ʒvj; *ol. lini. S. I. (in vitel. ov. ſol.)* ℥j; *ſyr. papav. errat. q. s. ut f. elect. capiat. q. n. m. Mag. ſexta quaque hora, ſuperbibend. hauſt. decoct. ſeqt.*

℞ *Decoct. pectorale com.* ℔iſs; *ſyr. ex alth. papav. errat. ana* ℥ij; *M.*

When the cough is very troubleſome towards evening, which is generally the caſe, the following bolus will be found to give great relief.

℞ *Sperm. ceti (in ol. amigdal. dul. ſol.)* ʒiſs; *elix. paregoric.* ʒj; *pul. rad. althæ, q. s. M. f. bol. hora ſomni ſumend. ſuperbibend. hauſt. aq. hord.*

If, notwithſtanding the uſe of all theſe medicines, the cough ſtill continues, we muſt proceed to make a revulſion from the lungs as may be obſerved in my preceding chapter.

PROPOSITION V.

To point out a means to allay the violence of the hæmorrhage.

IT will frequently be obſerved that a vomiting of blood, or a pulmonary hæmorrhage, not only precedes, but is a ſymptom of this diſeaſe, in all its ſtages; that proceeds from a great weakneſs of the pulmonary and bronchial veſſels, which are unable to make reſiſtance to the force of the blood, which is protruded from the heart with a greater impulſe than it has formerly been, occaſioned by its increaſed heat and inteſtine motion; hence a rupture enſues, which greatly terrifies the patient, becauſe of the large diſcharge of pure blood. The patient in this caſe, as ſoon as the hæmorrhage appears, ſhould be kept as quiet as poſſible, and, if he is not too much weakened by the diſeaſe, or has not loſt too much blood by the hæmorrhage, he ſhould be bleeded in the arm, or leg, to make a revulſion: afterwards let him take ſuch as the following medicines.

℞ *Decoct. cort. peruv.* lbſs; *gum. myrrh. balſ. tolu. ana* ʒiij; *coq. deinde adde. elix. vitrioli* ʒjſs; *ſyr. cort. aurant* ℥j; *M. capiat cochl.* iij; *ſexta quaque hora ſuperbibend. cochl.* vj. *miſtura ſeqt.*

℞ *Rad. tormentil. flores roſ. rub. pul. e. tragacanth. com. ana* ℥iſs; *aq. font.* lbiv. *coque ad* lbiij. *colaturæ adde. tinct. roſ. rub.* ʒiv. *ſal. nitri* ℥ſs; *ſyr. de roſ. ſic.*℥iij; *M. f. miſtura.*

During the uſe of theſe medicines, the patient ſhould carefully avoid all kinds of exerciſe, and be kept to a very low diet, chiefly on aliments which cauſe the leaſt fermentation in the blood.

PROPOSITION VI.

Of the nature, and method of relieving the diabetes; a ſymptom which very frequently attends a conſumptive decay, eſpecially of that kind commonly called the tabes dorſalis.

IT will ſometimes be obſerved, in all the ſtages of conſumptions, eſpecially in that ſpecies I have juſt now mentioned, that there is a very large quantity of a lympid juice, of a ſweetiſh taſte, diſcharged off by the kidneys, which frequently happens after we have braced the glands of the inteſtinal tube and reſtored their elaſticity; whereby the juices which paſſed off in the colliquative diarrhæa take a new turn, and are diſcharged off by the renal glands. The more the urine is endued with a ſweetiſh taſte, the greater is the danger; for it is a ſtrong indication that all the degeſtive powers are very much relaxed and vitiated, and that the chyle receives but very little alteration from the languid ſolids, more than what it had from the action of the ſtomach; for the veſſels which help forward the circulation, i. e. the action of the muſcles, ſhould ſo far divide the particles of the chyle before it comes to the kidneys for ſecretion, as to diſſolve the ſalts, and deſtroy that ſweetiſh taſte, that it received from the bile and pancreatic juice in the inteſtines; conſequently, a diabetes argues a higher relaxion and perverſion of the vaſcular ſyſtem than when there is only a flood of limpid taſteleſs urine excerned. The cure, therefore, of the diabetes will be performed by medicines which ſtrengthen the texture of the maſs of fluids, ſtrengthen the renal glands, and brace up the whole vaſcular ſyſtem: for which I know of none that is better than the following.

℞ *Decoct. cort. peruv.* ℥ij; *extract. gentianæ* ʒj; *pul. alum. rup. grs.* xij; *elix. vitrioli mynth. gut.* xxx; *ſyr. cort. aurant.* ʒiij. *M. f. hauſt. ter in die ſumend. ſuperbibend.* ℥iv. *decoct. ſeqt.*

℞ *Decoct. alb.* ℔iſs; *gum. Tragacanth.* ʒvi; *coque. colatura. adde tinct. roſ. rub.* ℥iv; *M.*

PROPOSITION VII.

Of gleets, not brought on by a venereal taint, and their method of cure.

A NATURAL gleet is nothing more than a ſingle iſſue, which ariſes from the relaxation of the glands of the urethra, and thoſe of the parts miniſtering to generation, which are generally weakened by overſtraining thoſe parts by vicious practices.

This is frequently the chief cauſe of the tabes dorſalis, as it drains off a large quantity of the fine balſamic particles of the blood. The cure of this ſymptom will be performed by reſtoring the tone of the part principally affected, by contracting and bracing up theſe glands, and thereby preventing the exceſſive diſcharges of the gleet. Therefore medicines which reſtore the elaſticity of the glands of the urethra and of the parts of generation will cure this diſeaſe. But before we can proceed to do this, we muſt endeavour to cauſe a revulſion of the flux of juices which fall upon this weakened part, by purging medicines, and afterwards we may brace up theſe glands by the following method.

℞ *Pulv. gum. maſtic. oliban. ſuccin. alb. ppt. ſang. dracon. ana* ʒj; *tereb. e Chio* ʒvj; *M. f. pil. mediocres, capiat. No.* 5. *mane et veſperi. ſuperbibend. hauſt. ſeqt.*

℞ *Decoct. cort. peruv.* ℥iſs; *aq. menthæ ſpt.* ℥ſs; *elix. vitrioli. gutt.* xxx. *ſyr. cort. aurant.* ℥ſs; *M: f. hauſt.*

℞ *Aq. calc.* lbſs; *troch. alb. rhas.* ʒvj; *vitrioli. alb.* ℈ij; *M. f. injectio urethræ injiciend. cum cyphone.*

If the diſcharges of the ſeminal matter be exceſſive, the patient's diet muſt be very ſparing, and of an aſtringent quality. He may drink occaſionally a few glaſſes of Red port, or of ſome other generous wine, to keep up his ſpirits, and if he is thereby much relaxed, he ſhould uſe the cold bath.

AN

APPENDIX,

CONTAINING

Some reaſons and examples to demonſtrate, that conſumptions may, like all other diſeaſes, be effectually cured, when timely remedied, and properly treated.

IN my preceding treatiſe, I have from experience, and a juſt reaſoning founded thereon, endeavoured to define the nature and cauſe of conſumptions, the various effects which they have upon a human body, in their different ſtages, and have pointed out a method of cure for every ſtage and ſymptom thereof. A doctrine of this kind cannot be regarded by mankind as juſt, and built upon a ſolid foundation, ſo long as a miſtaken notion prevails among them that conſumptions of all kinds are incurable. This is the motive that has induced me to write this appendix, to endeavour to prove this notion, or opinion, to be void of foundation, and to render obvious the contrary. But, before I proceed to offer ſome reaſons, and aſſert ſome examples, to prove that a conſumption like any other violent diſeaſe may be cured if timely and properly remedied, I ſhall examine the reaſons which are generally given by ſome phyſicians to prove this ſpecies of diſeaſes to be incurable, and ſee what foundation they have, when examined by the laws of nature and thoſe of the animal oeconomy. Firſt, then, they would have us believe that conſumptions are incurable, becauſe they reſiſt the force of the medicines which are generally ordered for their relief. This would certainly be a very juſt, and ſolid reaſon, if theſe medicines were ſuch as ever did relieve this ſpecies of diſeaſes, or, indeed if they could be proved, by the laws of nature, to have in their compoſition any particles which could poſſibly affect the ſame: but on a critical examination thereof, it will evidently appear, that the common balſamic and oily medicines, teſtaceous powders, aſs's milk, &c. which are generally ordered in thoſe caſes,

ſes, cannot poſſibly do any more than incraſſate or thicken the juices, and allay the violence of the ſymptoms for ſome time; to attenuate the juices, reſolve the obſtructions, and reſtore the ſpringineſs and elaſticity of the vaſcular ſyſtem, the principal intentions of cure, are what cannot be expected therefrom. Secondly, They would have us to think them incurable becauſe they are complicated diſeaſes, and frequently attended with ulcers of the lungs, and of the other principal organs of the body. This may be regarded by ſuperficial obſervers as a very plauſible reaſon, but upon a critical enquiry, it will be found to have no foundation in nature; nay experience likewiſe teaches us the contrary. It is true, ulcers of the lungs, and of the ſeveral internal viſcera, are very difficult of cure, nay, for the generality incurable, if not timely and properly remedied; but when theſe are taken in time, and properly treated, how frequently do we ſee them cured? In all wounds and ulcers of the internal parts, the fluids are the fineſt balſam that nature has yet invented for their relief; nay, I might have added, in thoſe of the external parts likewiſe; if, therefore, the fluids have their natural balſamic quality, i. e. if they have a proper degree of velocity and attenuation from their containing veſſels, and circulate freely through the ſame (for they are known to loſe their balſamic quality, whenever their velocity is increaſed or decreaſed, and whenever they are too much attenuated, or too viſcid and tenaceous) they are rendered incapable of affording any relief to the wounds, ruptures, or other hurts of their containing veſſels, but will rather increaſe the ſame, by a putrid or acrid quality which they acquire, by ſtagnating upon the wounded or ulcerated part. Therefore, whenever we would cure any internal wound, ulcer, or rupture, we have no other ſecret to get the knowledge of, but that of preſerving the proper texture of the blood, and a due degree of velocity thereof from its containing veſſels. Therefore, in the caſe before us, when we can properly attenuate the viſcid and tenaceous blood, reſolve the obſtructions of the ſeveral viſcera, give a proper degree of ſpringineſs to the fibres, thereby to give a due velocity to the juices, we need not to be much at a loſs to relieve an ulcer of the lungs or of any of the other viſcera; for there is nothing more to be done than to regulate the non-naturals, and to order a few medicines, ſuch as I have already mentioned, to preſerve the ſolids and fluids in this ſtate. In vain, therefore, may we cram the body with balſams, lubricating, abſorbing, and anodine medicines, if we do not, in the firſt place, bring the ſolids and fluids to ſuch a diſpoſition as I have juſt now mentioned; as all medicines of that kind will afford but a temporary relief, till this is affected. Thirdly, mankind have entertained an opinion that this ſpecies of diſeaſes are incurable, becauſe their forefathers have regarded them in that light, and becauſe they have made ſeveral unſucceſsful attempts for their relief. The antients, indeed, deemed conſumptions incurable becauſe they were not acquainted with the cauſes thereof; and conſequently could not be judges of their methods of cure; but I am well aſſured, that if thoſe fathers of phyſick had been inſtructed in all the improvements which have been made in the art of medicine within one century paſt, they would have altered their opinion, as thoſe great and indefatigable perſons took an immenſe deal of pains to be acquainted with the knowledge of nature, and the means to be uſed for her relief: but many of the moderns, who, I muſt confeſs, have not been idle in ſearching after medicinal knowledge, have purſued a wrong courſe to attain to the ſame. When a perſon employs his whole ſtudy upon one, perhaps of the leaſt material branches of any ſcience, it will be abſolutely impoſſible for that man to attain to any competent knowledge in the whole ſcience. For inſtance, when any phyſician employs his whole time in enquiring after the nature of a gland, whether it is of the conglobate or conglomerate kind, or in torturing the blood by fire, how is it poſſible he ſhould be able to make himſelf acquainted with the knowledge and laws of material bodies and how they act upon each other? A knowledge of much greater uſe in the practice of medicine than ſuch a critical knowledge of anatomy; although I would not be thought to ſpeak againſt a competent knowledge of the ſtructure of the human body; but I muſt own ſuch an extraordinary nicety is abſolutely unneceſſary, and rather confuſes a perſon, than affords any uſeful knowledge. The ſame may be obſerved of Chymiſtry, Botany, &c. The purſuit of theſe hath made the moſt ingenious of our modern phyſicians neglect, in a great meaſure, enquiring into the cauſes of diſeaſes, and the proper means which ſhould be uſed for their cure; but in theſe branches they rely upon the induſtry of the antients, and in caſes where thoſe erred, from not having a competent knowledge of the laws of matter, and thoſe of the animal oeconomy, theſe err purely by being too much begotted to their opinions. A man who, by experience, and by being acquainted with the laws and operations of nature, makes any diſcoveries in the medicinal art, may be regarded as a man of ſcience, and a man to whom honour is due; but he who, like the idle drone, would profit upon the induſtry of his predeceſſor, and ſuck his honey, without examining whether it may be properly called honey or no, can be regarded in no other light than as a bigot, or as a perſon who is not to be numbered but among the lumber of the human ſpecies. Fourthly, ſome of our modern phyſicians would have us to believe that conſumptions are incurable, becauſe the chief ſeat of their cauſe is beyond the power of medicine to have any effects thereon; more eſpecially if any of the internal viſcera are ulcerated. But I muſt confeſs that theſe perſons have a much greater inſight into the art of medicine than I, if theſe aſſertions are true; indeed this ſpecies of diſeaſes, like any other diſeaſes to which the human body is obnoxious, may, if they are left to gain a firm root in the body, be out of the power of medicine to eradicate. When the chief ſeat of a conſumption is in the blood and the ſolid parts of the ſeveral viſcera of the body, how is it poſſible for it to be out of the reach of medicine? When a perſon takes any medicine, it muſt act immediately upon the fibres of the ſtomach, and ſoon after upon the other viſcera and the blood; conſequently, it muſt immediately be to the ſeat of the diſeaſe. But I imagine that the perſons who give this for a reaſon why conſumptions ſhould not be curable, do ſuſpect the lungs, and its obſtructions, and ulcers, to be the cauſe of the diſeaſe. Now, ſuppoſe this was really the cauſe, by attenuating the maſs of blood, by giving it a due degree of velocity, by increaſing the vibrations and elaſticity of the vaſcular ſyſtem, and by making a revulſion from the lungs, we might liquify and balmify the maſs of fluids, which is continually paſſing through the lungs, and ſend them with a greater impulſe againſt the obſtructed veſſels, whereby the ſuperfluous juices may be removed, by expectoration, and to the extreme parts of the body, the obſtructions may be forced open, and the ulcers healed, by the balſamic blood which flows freely thereto. However, I would not have any perſon imagine that I am endeavouring hereby to prove that all ulcers of the lungs may be cured by this means; no, I am only aſſerting what experience as well as reaſon have taught me,

i. e. that ulcers which have not been of long ſtanding may, by this means, be relieved. When theſe are grown ſchirrous, callous, or by ſinuſes, adjoin to each other, I am far from thinking them curable, although, even then, when the body is not very much emaciated, they may be palliated. We have frequent examples of vomicas being cured, notwithſtanding they have diſcharged a large quantity of matter, by timely application of proper medicines, and why may not ulcers be equally, or in fact more eaſy to relieve, when timely aſſiſtance is given? I was once called to a gentleman, who, from the effects of an ill cured pleuriſy, had a large vomica in his lungs, from which, by the timely application of medicines, firſt a courſe of emollients, for four or five days, and afterwards a ſtrong ſolution of gum ammoniacum and olibanaum, with ſalt of amber, he diſcharged near one pint and half of pure matter, in a ſhort interval of time, and was happily cured thereof. Thus it does evidently appear that when the conſtitution is not too much emaciated, and the fibres have not loſt their contractions and elaſticity, the moſt violent diſorders of the lungs may be cured, equally as certain as thoſe of any other part of the body. I have frequently been conſulted for perſons who had ulcers in their lungs, and always obſerved that, by proper management, thoſe which were recent might be cured. I attended about one year ſince, a young gentleman of Huntingdon, who laboured under a conſumption with an ulcer of the lungs and a vomiting of blood, whereby he was ſo much weakened that he was ſcarcely able to walk acroſs his room, but by the adminiſtration of ſuch medicines as I have pointed out in the foregoing treatiſe, with a regular uſe of the non-naturals, his hæmorrhage was ſoon cured, and, after ſometime, he was likewiſe reſtored from his ulcer and conſumption. I could produce ſeveral other inſtances of perſons having been reſtored of ulcers in the lungs, while they were recent; but I never ſaw any one cured, when the ulcer had been of long ſtanding, or was grown ſchirrous, or callous. From hence we may juſtly obſerve, that there are a great number of perſons, in their prime of life, ſnatched off by conſumptions, who might be happily reſtored if they had applied for aſſiſtance in time; and likewiſe there are a great number of helpleſs miſerable creatures, who are tampered with in the beginning of the diſorder, and when their lungs are perceived to be in the leaſt ulcerated, they immediately receive that heart-breaking ſentence incurable. Seeing, then, that I have proved my aſſertions by experience, and proved them to be no conjectural ſuppoſitions of my own, I ſhall now proceed to prove them likewiſe to be founded on principles the moſt certain that can exiſt in the body. When the body is in health, the veſſels are properly braced, the circulation is free and entire, and all ulcers, running ſores, iſſues, or any other artificial drain, will immediately dry up, and heal by the blood's fine balſamic quality. But when the body becomes diſeaſed, i. e. when the fibres begin to loſe their ſpringineſs and elaſticity, the velocity of the blood will be decreaſed, and that fluid will ſoon acquire new qualities, grow viſcid, tenaceous, and, perhaps, putrid. If the patient lives irregularly, ulcers will break out in ſome parts of the body, ſometimes externally, and at other times internally; which will be a drain to the conſtitution, and, while they are kept running, will prevent any putrid humours from accumulating upon the more noble parts of the body. When this humour does not take this friendly turn outward, it falls upon the more noble parts; this is the matter which obſtructs and ulcerates the lungs, and is the immediate cauſe of a phthiſis. When therefore the lungs are not ſchirrous, callous, or much weakened, and when, there is ſuch a ſtrength of fibres as to aſſiſt making a revulſion therefrom upon the extreme parts, any ulcer, accumulation of humours, or even obſtructions of the internal parts, may be removed, more eſpecially if they have not been of long duration. But when the fibres are ſo much relaxed that revulſion cannot be made, theſe internal ulcers will increaſe, and the caſe may be deemed incurable: The external and extreme parts firſt begin to emaciate,

ciate, and grow cold, for want of a proper degre of motion, and of being properly nouriſhed; and as the patient draws nearer to the verge of life, ſo in proportion the fibres relax, and all the ſprings of nature weaken; the vaſcular ſyſtem is no longer capable of conveying the juices to the extreme parts for ſecretion; whereupon any old ulcer, or running ſore, or iſſue, on thoſe parts, immediately dry up, and its matter falls in on the more noble parts. This is a fact ſo univerſally known, that it will ſcarce be diſputed by any perſon who has ever ſeen an inſtance of this kind: for all our endeavours to keep an old ſore, fiſtula, or iſſue, open, will be in vain when the fibres have loſt their elaſticity, and the vaſcular ſyſtem is unable to perform its office. But there is no doubt of perſerving the patient's life ſo long as we can keep the ulcer, or fiſtula, to a good digeſtion; and theſe will be kept to a good digeſtion, ſo long as the ſolids maintain their ſpringineſs and elaſticity, that is ſo long as they continue to help forwards the ſecretion of the juices for the maintaining the matter of the diſcharge. Seeing, then, that the motion of this matter, which occaſions, and feeds ulcers in the ſeveral viſcera, will be determined from the internal to the external parts of the body, and *vice verſâ*, according as the action of the containing veſſels is more or leſs powerful; it will very evidently appear that what I have juſt now aſſerted concerning the cure of ulcers of the lungs, and other internal viſcera, is agreeable to the genuine laws of the animal oeconomy, as well as to experience, and, conſequently, may be ſaid to be juſt, and built upon a ſolid foundation: and it is with a great deal of admiration, and no leſs ſurprize, that I hear ſo many learned and reputable men aſſert to the contrary; but we are all ſubject to errors, they in this particular, and perhaps myſelf in ſeveral others. From what I have already obſerved, it will appear very obvious, that whenever we can reſolve the obſtructions of the viſcera, attenuate, and render duly fluxile, the maſs of fluids, and the obſtructing matter, give a ſpringineſs and elaſticity to the fibres and vaſcular ſyſtem, and detach the ſuperfluous juices off the body, by ſome of the natural evacuations, we ſhall be able to cure an ulcer of the lungs, or, indeed of any of the other internal viſcera; but when theſe cannot be performed, it will be in vain for us to attempt to cure it. Therefore, in conſumptive caſes, we ſhould be very careful, ſeeing that the life of the patient is in the greateſt danger without ſpeedy relief, to order a courſe of proper medicines to anſwer theſe intentions, before the body is ſo much weakened, and emaciated, that it is not in the power of human art to do it; and then, with proper treatment, we need not fear curing the ulcers of the lungs and of the other internal viſcera. But if we neglect to purſue the aforeſaid courſe, and proceed to allay the cough, and other ſymptoms, only by oily and balſamic medicines, we play with the life of the patient, and in the end he falls a ſacrifice to our obſtinacy and abſurdity. By purſuing ſuch methods it was that this diſeaſe was thought incurable, even in its firſt ſtage, by the antients. A man who would undertake by this means to cure a conſumption, may be very juſtly compared to another man who would cut down a large tree by gradually cutting off its branches. I do not doubt but that theſe obſervations, and in fact a great part of the preceding treatiſe, will be ridiculed, and regarded as the chimeras of a diſtempered brain, by all thoſe who are the advocates of that doctrine which teaches that all conſumptions are incurable, even in their firſt ſtage: however, I ſhall diſregard any of their ſneers, and malicious ſpeeches; and am well aſſured, that the more candid and judicious part of mankind, and indeed of the faculty, will plainly perceive the truth of my aſſertions.

FINIS.

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